ORDER NO. VRD8711M213
D9

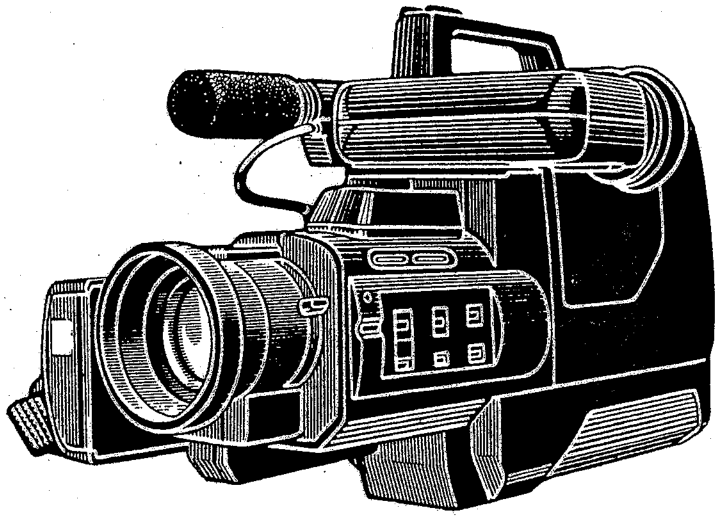
Service Manual

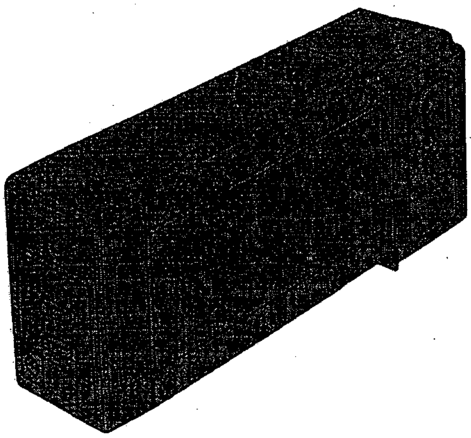
Panasonic VHS
Professional/Industrial Video

VHS Movie

AG-170

Operating Instructions
Circuit Descriptions
Mechanical Adjustment Procedures
Electrical Adjustment Procedures
Block Diagrams
Schematic Diagrams
Circuit Board Diagrams
Exploded Views
Replacement Parts Lists





AC Adaptor
(AG-B3A)

PRO LINE
VHS REPORTER

Panasonic®

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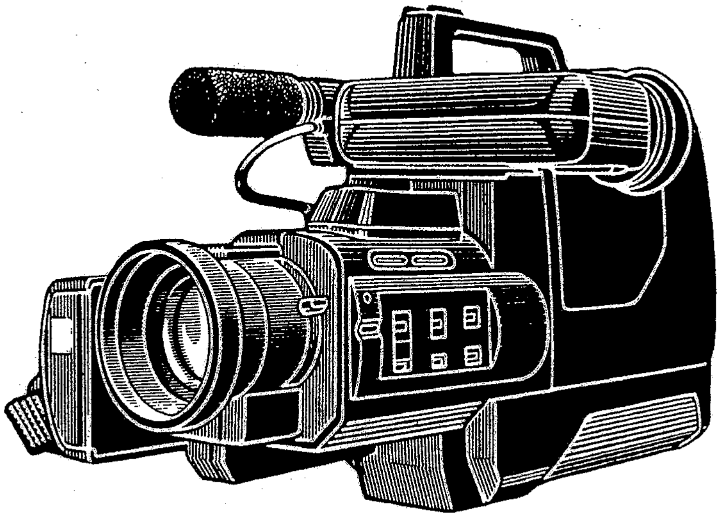
INTRODUCTION

This Service Manual contains all the technical information which allows service personnels to understand and service this Panasonic VHS Movie model AG-170.
The AG-170 has many special features as described later.
Added to the basic VHS format, these features make the AG-170 an ideal unit for business, education, entertainment, sales and training applications.

Just slightly ahead of our time...Panasonic

VHS Movie

AG-170



SPECIFICATIONS

ITEM	SPECIFICATION
Power	Source: BATTERY; DC 10.5V~16V Consumption; Recording mode; 7.6W (Battery operation) Stand-by mode; 1.0W (Battery operation)
Recording System	4 rotary heads, helical scanning system NTSC
Tape Format	VHS Cassette Tape (Tape width 12.7mm)
Tape Speed	1-5/16 i.p.s. (33.35mm/s) Record/Playback Time 160 min. (with NV-T160) FF/REW Time less than 10 min. (with NV-T120)
Camera	PICK-UP ELEMENT: CCD (Charge Coupled Device)
	STANDARD ILLUMINATION: 1,400 lux
	MINIMUM REQUIRED ILLUMINATION: 7 lux
	LENS: Built-in 6:1 Power Zoom Lens with MACRO Function, Auto Iris, Auto Focus System, F1.2 (9~54mm), Filter Diameter/ϕ49mm
	VIEW FINDER: 2/3" B/W Electric View Finder
	WHITE BALANCE: Auto White Balance/Indoor/Outdoor
Video	HEADS: 5 rotary heads
	INPUT (Using Line Adaptor): Adaptor (Multi); Y signal; 1.75Vp-p, C Burst signal; 500mVp-p
	OUTPUT: Adaptor (Multi); 1.0Vp-p 75Ω unbalanced

ITEM	SPECIFICATION
Audio	HEAD: 1 Stationary head (Normal Audio)
	INPUT: MIC IN; −70dBV, 4.7kΩ unbalanced Adaptor (Multi, using Line Adaptor); −10dBV, 47kΩ unbalanced
	OUTPUT: Adaptor (Multi); −8dBV 600Ω balanced
Weight	Approx. 5.02 lbs. (2.28kg) (without Battery Pack)
Dimensions	4-3/4" (120mm) (W) × 8-13/16" (223mm) (H) × 15-11/16" (398mm) (D) with view finder turned down (without carrying handle)
Standard Accessories	1 pc. Battery Pack 1 pc. Battery Pack Charging Connector 1 pc. DIN-DIN Coaxial Cable 1 pc. AC Adaptor 1 pc. Shoulder Strap 1 pc. Batteries for Clock 1 pc. AV Converter Connector 1 pc. System Carrying Case 1 pc. AV Cord 1 pc. Line Adaptor 1 pc. 300Ω-75Ω Transformer 1 pc. Pause Remote Control Unit
Optional Accessories	1 pc. Car Battery Cord (VW-ACM1) 1 pc. Character Generator (VW-CG1) 1 pc. Shoulder Pad (VW-SP7) 1 pc. Battery Pack (AG-BP202)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

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OPERATING INSTRUCTIONS

CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

"This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications set forth in Subpart J of Part 15 of the FCC Rules. If this equipment does cause interference to radio or television reception which can be determined by turning the equipment on and off, use the equipment in another location and/or utilize an electrical outlet different from that used by the receiver."

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

WARNING: Unauthorized recording of copyrighted television programs, films, video tapes and other materials may infringe on the rights of copyright owners and be contrary to copyright laws.

▨ is the safety information.

FEATURES

Piezo Auto Focus

The focus is always automatically and precisely adjusted under all shooting situations.There is no need to manually adjust the focus ; manual focus adjustment is aiso possible.

Cue & Review Playback

Convenient for fast–forwarding or rewinding the tape while watching the picture.

Compact, Lightweight and Super-Portable

With a weight of only 2.3kg,the VHS Movie is handy to use and carry along.

3-Way Power Supply

The VHS Movie can be operated on 3 different power sources: rechargeable battery pack, AC adaptor or car battery cord.

Auto White Balance

The white balance is fully automatically adjusted and continuously readjusted to any changes in illumination during shooting. Manual adjustment is also possible.

Alarm Indications

Various warning indications prevent operating mistakes and always assure successful results.

6X Power Zoom Lens

Powerful, smooth zooming between Wide–angle and telephoto is simple with convenient push–button control.

High Speed Shutter Function

This function makes it possible to catch even super–fast action with sharp countours and amazing detail.

Audio Dubbing Function

The Audio Dubbing function allows replacing the originally recorded sound with narration, background music or special sound effects.

Insert Editing

Insert Editing (or Insert Recording) is handy for editing tapes by inserting new scenes into an already recorded video tape.

Recording of TV Programmes is Possible via a Line Adaptor (Optional)

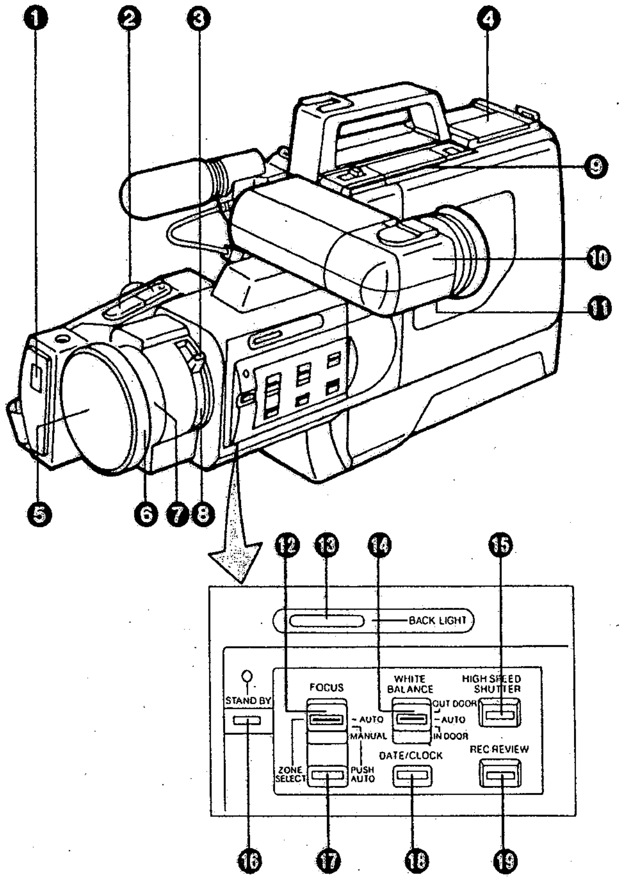
By connecting a TV set with separate Video/Audio Output Sockets via the Line Adaptor (optional), recording TV programmes is possible.

HQ (High Quality) Picture System

Video recorders carrying the HQ symbol mark feature the new VHS High Quality Picture System. This system assures complete compatibility with VTRs that use the conventional VHS system.

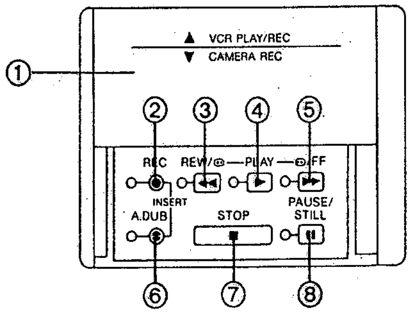
CONTROL & COMPONENTS

RIGHT VIEW



❶
❷
❸
❹
❾
❿
⓫
❺
❻
❼
❽
⓬
⓭
⓮
⓯
BACK LIGHT
STAND BY
FOCUS
AUTO
MANUAL
ZONE SELECT
PUSH AUTO
WHITE BALANCE
OUT DOOR
AUTO
IN DOOR
DATE/CLOCK
HIGH SPEED SHUTTER
REC REVIEW
⓰
⓱
⓲
⓳

❶ White Balance Sensor Window
❷ Power Zoom Control Buttons
❸ Manual Zoom Lever with Macro Button
❹ Tape Running Buttons

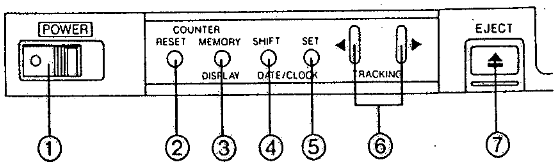


▲ VCR PLAY/REC
▼ CAMERA REC
①
②
③
④
⑤
REC
REW/⊙
PLAY
⊙/FF
INSERT
A.DUB
STOP
PAUSE/STILL
⑥
⑦
⑧

① **Function of the Camera/VCR Selector Cover**
Before starting camera recording, slide this cover close to conceal the Tape Running Buttons and render them inoperative.
For playback, audio dubbing, tape copying and other VCR operations, open this cover. This renders the Start/Stop Button and other operation controls for camera recording inoperative.

② Record Button
③ Rewind/Review Button
④ Play Button
⑤ Fast Forward/Cue Button
⑥ Audio Dubbing Button
⑦ Stop Button
⑧ Pause/Still Button

❺ Lens Cap
❻ Lens Hood
❼ Focus Ring
❽ Zoom Ring
❾ General Operation Controls

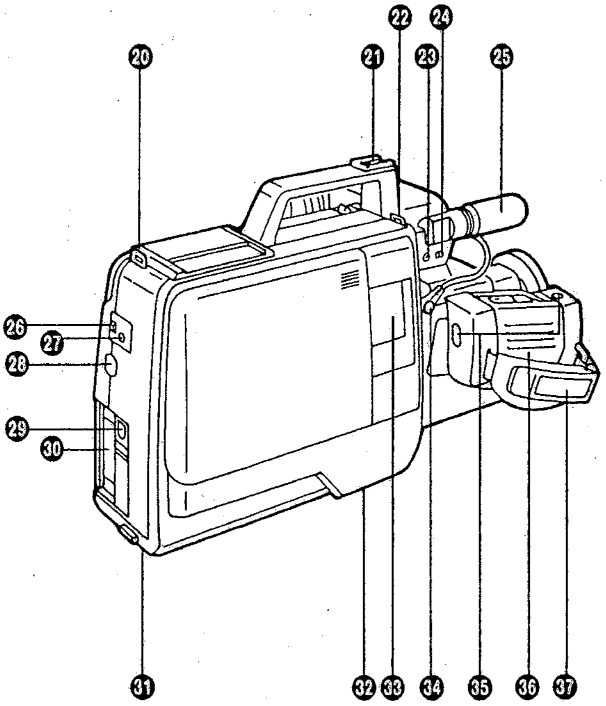


POWER
COUNTER
RESET
MEMORY
SHIFT
SET
DISPLAY
DATE/CLOCK
TRACKING
EJECT
①
②
③
④
⑤
⑥
⑦

① Power Switch with Indicator
② Reset Button
③ Memory Button
④ Date Shift Button
⑤ Date Set Button
⑥ Tracking Adjust Buttons
⑦ Eject Button

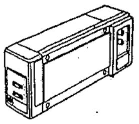
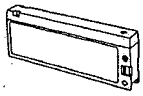
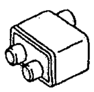
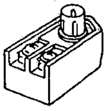
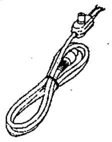
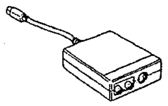
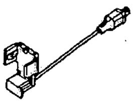
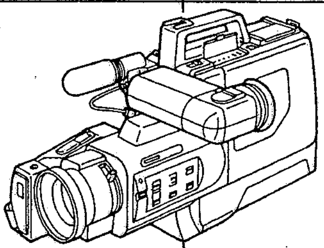
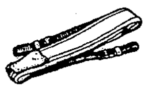
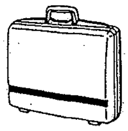
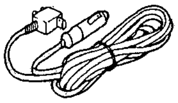
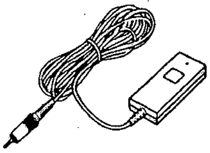
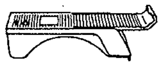
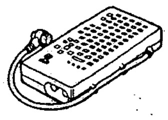
❿ Electronic Viewfinder
⓫ Eyepiece Corrector Control
⓬ Focus Mode Selector
⓭ Back Light Button
⓮ White Balance Mode Selector
⓯ High Speed Shutter Selector
⓰ Standby Button with Indicator
⓱ Focus Adjusting Button/Zone Selector
⓲ Date/Clock Selector
⓳ Rec Review Button

LEFT VIEW



⑳ Metal Fitting for Shoulder Strap
㉑ Accessory Shoe
㉒ Metal Fitting for Shoulder Strap
㉓ External Microphone Jack
㉔ Microphone Sensitivity Selector
㉕ Built-in Microphone
㉖ Edit Switch
㉗ Remote Control Jack
㉘ Adaptor Socket
㉙ Battery Eject Button
㉚ Battery Compartment
㉛ Battery Compartment for Auto Date/Clock
㉜ Tripod Receptacle
㉝ Cassette Compartment
㉞ EVF/Character Generator Terminal
㉟ Start/Stop Button
㊱ Handgrip
㊲ Grip Belt

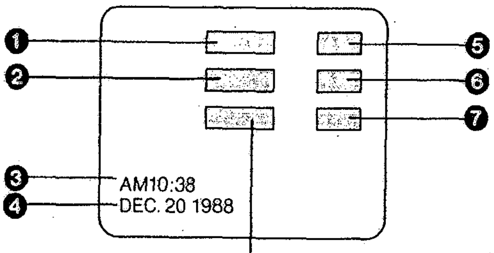
VHS MOVIE SYSTEM

 AC Adaptor (supplied)	 Battery Pack (supplied) Batteries for Clock Operation (supplied)	 AV Converter Connector (supplied)  300 ohm–75 ohm Transformer (supplied)	 Coaxial Cable (supplied) Audio/Video Cable (supplied)
 Line Adaptor (supplied)	 Battery Pack Charging Connector (supplied) 	 Shoulder Strap (supplied)	 System Carrying Case (supplied)
 Car Battery Cord (VW-ACM1) (optional)	 Pause Remote Control Unit (supplied)	 Shoulder Pad (VW-SP7) (optional)	 Character Generator (VW-CG1) (optional)

CAUTION: TO PREVENT FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

EVF INDICATIONS

The following indications are displayed in the Electronic Viewfinder (EVF) to inform you of the operating conditions of the VHS Movie.



Warning/Alarm Indications

BATT	There is little battery power left. The VHS Movie will be turned off in a few minutes. Replace the battery pack by a fully recharged one.
TAPE	It is impossible to record because the erasure prevention tab of the cassette is not intact.
END	The tape has reached its end. Replace the tape with a new one.
DEW	When condensation has formed inside the VHS Movie, the "DEW" indication will flash and a few seconds later, the unit will turn itself off.

❶ Remaining Battery Power Indication

E----F	The "▬" indications begin to disappear from right to left as the power of the battery pack weakens.

❷ Counter Indication

M0123	Tape Counter
2:34	Lap Time Counter

❸ Clock Indications

❹ Date Indications

❺ Recording/Insert Indication

REC	Recording
---	Recording Pause
INST	Insert
---	Insert Pause

❻ High Speed Shutter Mode Indication

1/500	1/500 sec.
1/1000	1/1000 sec.

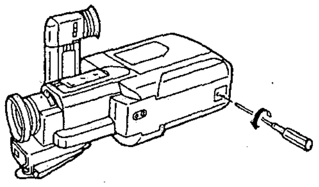
❼ Manual White Balance Indication

OUT	OUTDOOR
IN	INDOOR

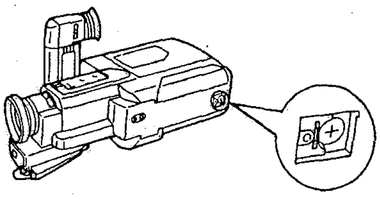
- Some of the above indications may light up alternately at the same place in the EVF to indicate the corresponding operating condition or warning.

INSERT THE CLOCK BATTERY

❶ Remove the lid on the bottom of the VHS Movie with a (+) screwdriver.



❷ Insert the "LR1130" size battery with the polarities (⊕ and ⊖) aligned correctly and then replace the lid.
- The clock starts working as soon as the battery is inserted.



The "LR1130" size battery (supplied) is necessary for the operation of the built-in digital clock, and to memorize the Date/Clock Indications when the VHS Movie is turned off.

CAUTION FOR BATTERY REPLACEMENT

- The life of the battery is about one year, however, it depends on the frequency of use. Inspect and if necessary, replace the battery once a year.
- Load the new battery with their polarities (⊕ and ⊖) aligned correctly.
- Do not apply heat to battery, or internal short-circuit may occur.
- Remove spent battery immediately and dispose of it.

CIRCUIT DESCRIPTIONS

1. General Introduction

The Panasonic VHS Movie Model AG–170 is based on a proven VHS Movie chassis mechanism with some new functions, such as the Flying Erase Head, New CCD Image Sensor and Variable High Speed Shutter.
Figure 1 shows the difference between the AG–160 and AG–170. Please refer to the AG–160 Technical Description (ORDER NO.VRD8611242) regarding the other basic circuits.

			AG-160	AG-170
GENERAL	WEIGHT		2.5kg	2.3kg
	POWER CONSUMPTION		9.0W (REC) 1.0W (STAND-BY)	7.6W (REC) 1.0W (STAND-BY)
CAMERA SECTION	LENS		F1.2	F1.2
	PICK-UP ELEMENT		1/2″ CCD (210,000 CELLS)	1/2″ CCD (250,000 CELLS)
	FOCUS		PIEZO FOCUS	PIEZO FOCUS
	IRIS		FULL AUTO/BACK LIGHT	FULL AUTO/BACK LIGHT
	WHITE BALANCE		INDOOR/OUTDOOR /AWT	INDOOR/OUTDOOR /AWT
	HIGH SPEED SHUTTER		1/1000	1/1000, 1/500
VTR SECTION	DEW SENSOR		1 pc	1 pc
	EJECT		POWER ON/OFF EJECT	POWER ON/OFF EJECT
	EDIT SW		ON/OFF	ON/OFF
	FLYING ERASE		——	YES
	VIDEO INSERT		——	AVAILABLE
	AUDIO DUBBING		AVAILABLE	AVAILABLE
	FADE		AVAILABLE	——
	EXTERNAL RECORDING		AVAILABLE (WITH LINE ADAPTOR)	AVAILABLE (WITH LINE ADAPTOR)
	5 MINUTES TIMER	WITH BATTERY	STOP→POWER OFF	STAND-BY
		WITH AC ADAPTOR	STOP	STAND-BY
E.V.F.	SIZE		2/3″	2/3″
	ILLUMINATION INFORMATION		ILLUMINATION INDICATOR	ILLUMINATION INDICATOR
	DATE/CLOCK INDICATIONS		DATE/CLOCK (1 YEAR BACK UP)	DATE/CLOCK (1 YEAR BACK UP)

Figure. 1 Comparison Chart

2. High Speed Shutter

The 1/500 high speed shutter function is newly added to the AG–170. This function is fundamentaly the same as the AG–170 1/1000 high speed shutter. The key scan pulse is sent to pin 7 of IC6001 through the high speed shutter SW on the Camera Opration (1) C.B.A., when the SW is pressed. The microcomputer detects the shutter speed and produces VMD1 or VMD2 signal which is applied to the CCD drive circuit(IC201) on the Sensor C.B.A. It generates the CCD drive pulse from the high speed shutter mode as shown in Figure ②– 3

The operation of the 1/1000 high speed shutter mode is as same as AG–160.
In the 1/500 high speed shutter mode, the 519–th horizontal sync position and the second transfer is at the 25–th horizontal sync position so the high speed shutter period becomes 28H which is 1/562 second as shown in figure 3.

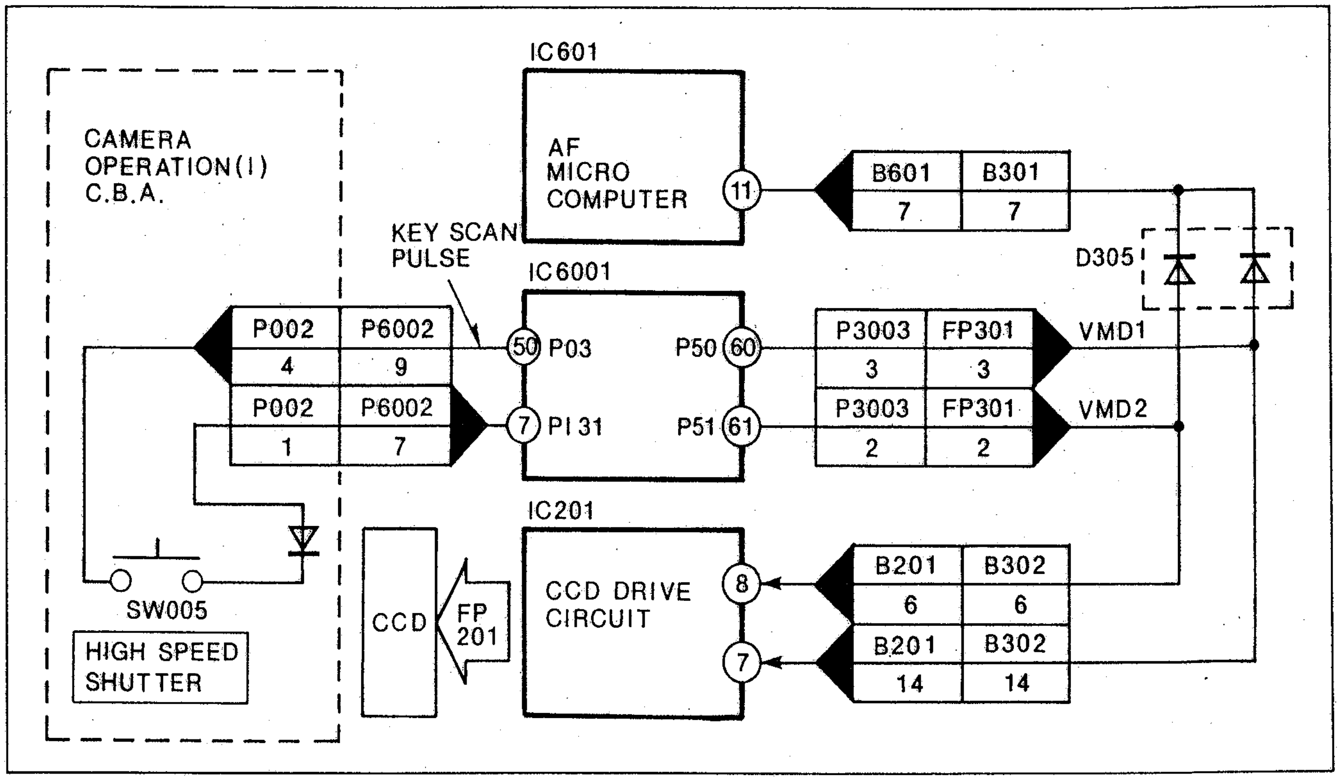

CAMERA OPERATION(1) C.B.A.
SW005
HIGH SPEED SHUTTER
P002 4
P6002 9
P002 1
P6002 7
KEY SCAN PULSE
IC601
AF MICRO COMPUTER
11
B601 7
B301 7
D305
IC6001
50 P03
7 PI31
P50 60
P51 61
P3003 3
FP301 3
P3003 2
FP301 2
VMD1
VMD2
IC201
CCD DRIVE CIRCUIT
8
7
B201 6
B302 6
B201 14
B302 14
CCD
FP 201

Figure 2

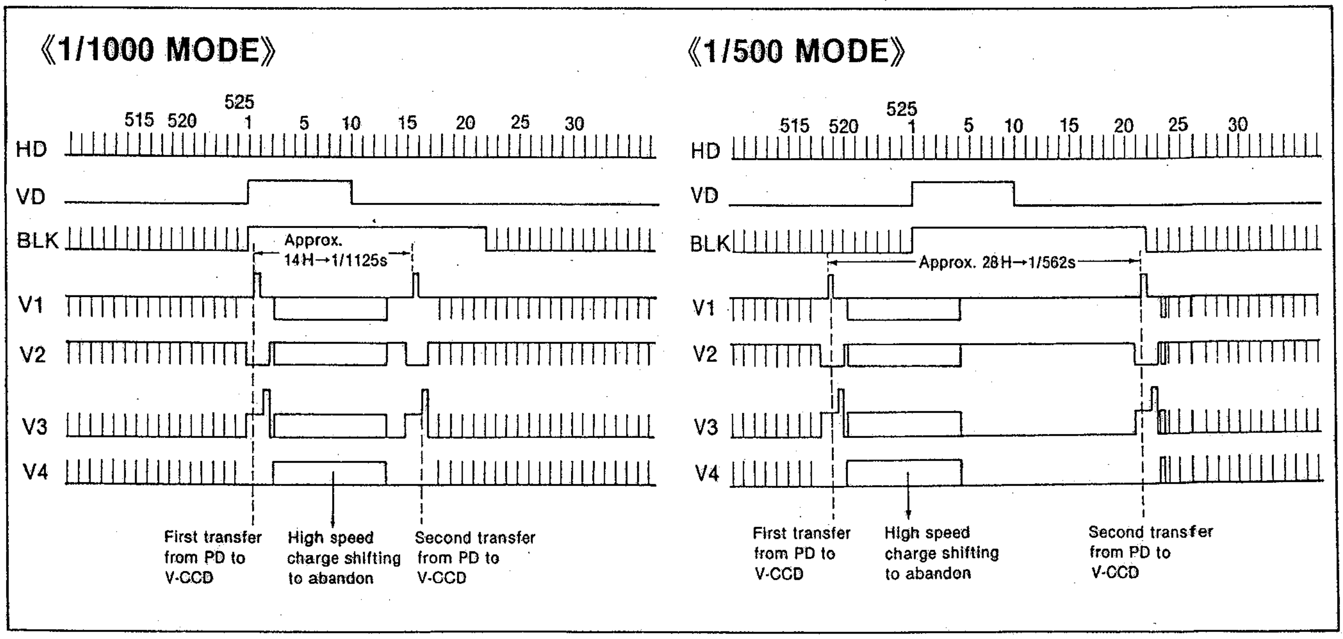

《1/1000 MODE》
525
515 520 1 5 10 15 20 25 30
HD
VD
BLK
Approx. 14H→1/1125s
V1
V2
V3
V4
First transfer from PD to V-CCD
High speed charge shifting to abandon
Second transfer from PD to V-CCD
《1/500 MODE》
525
515 520 1 5 10 15 20 25 30
HD
VD
BLK
Approx. 28H→1/562s
V1
V2
V3
V4
First transfer from PD to V-CCD
High speed charge shifting to abandon
Second transfer from PD to V-CCD

Figure 3

3. Flying Erase System

The Flying Erase Head is newly added to the AG–170. The Flying Erase Head makes noise–less editing and video insert editing. The head switchin pulse and upper cylinder are shown in figure 4. This model has 1 Flying Erase Head whitch trases the recorded tracks as Figure 5. Flying Erase circuit and timing are shown in Figure 6,7,8.

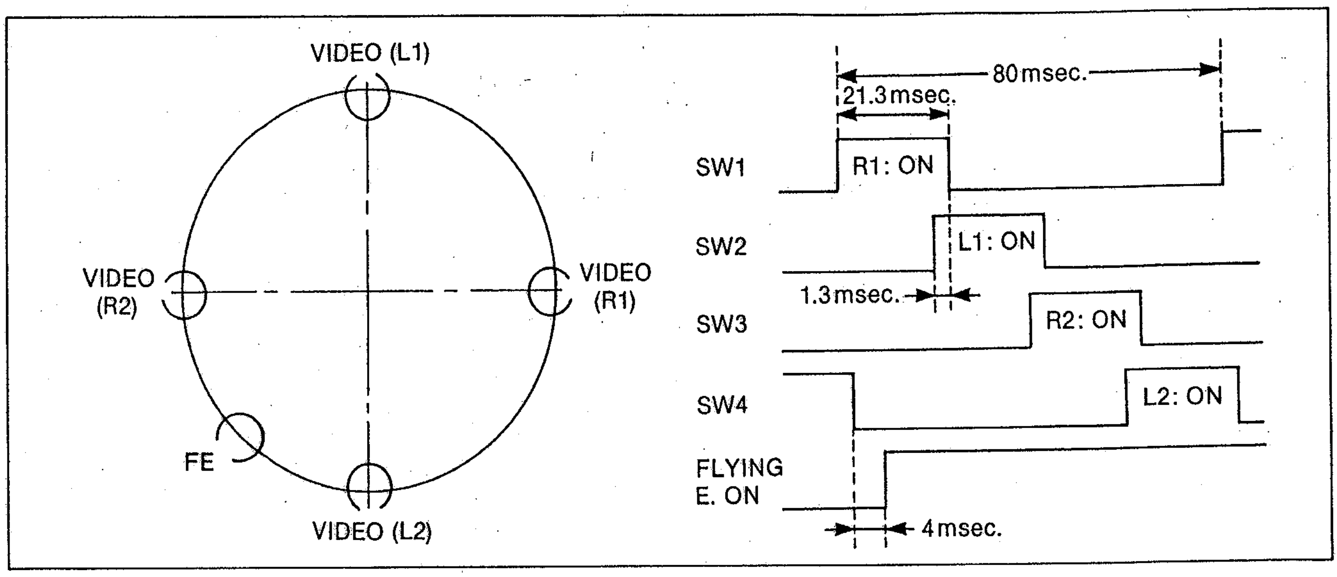

VIDEO (L1)
VIDEO (R2)
VIDEO (R1)
FE
VIDEO (L2)
80msec.
21.3msec.
SW1
R1: ON
SW2
L1: ON
1.3msec.
SW3
R2: ON
SW4
L2: ON
FLYING E. ON
4msec.

Figure 4 Upper Cylinder and Head Switching Signal

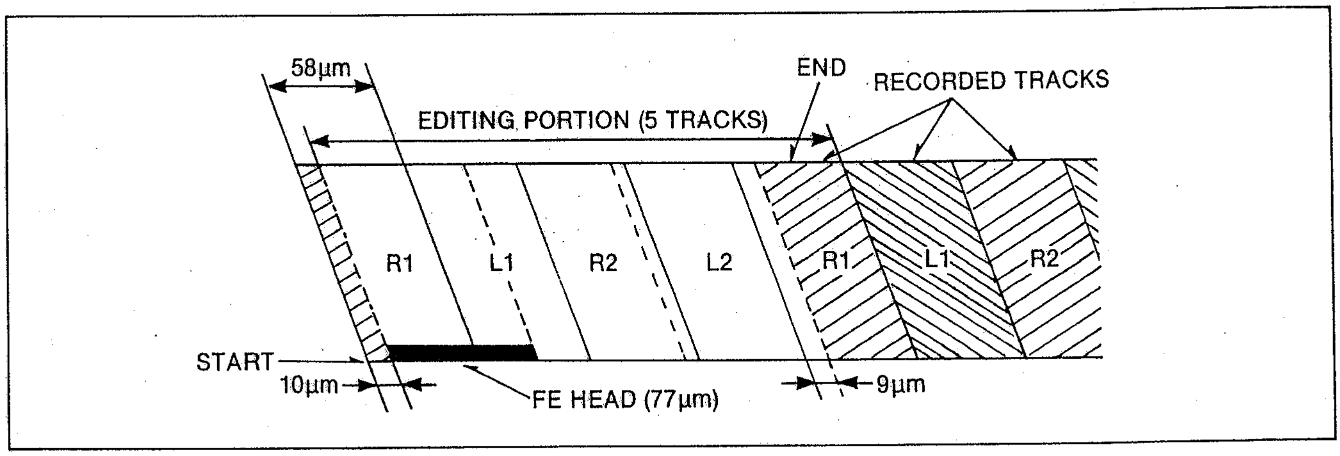

58µm
END
RECORDED TRACKS
EDITING PORTION (5 TRACKS)
R1
L1
R2
L2
R1
L1
R2
START
10µm
FE HEAD (77µm)
9µm

Figure 5 Tape Pattern

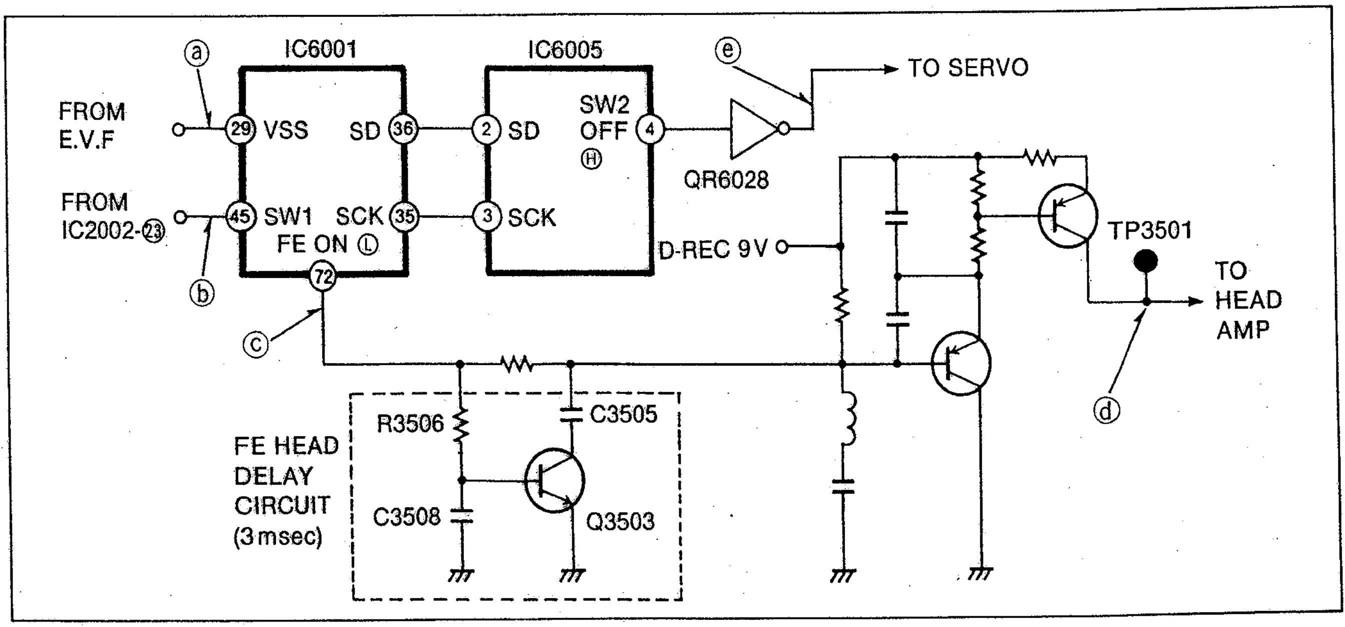

ⓐ
IC6001
IC6005
ⓔ
TO SERVO
FROM E.V.F
29 VSS
SD 36
2 SD
SW2 OFF Ⓗ 4
QR6028
FROM IC2002-㉓
45 SW1
SCK 35
3 SCK
FE ON Ⓛ
72
ⓑ
ⓒ
D-REC 9V
TP3501
TO HEAD AMP
ⓓ
FE HEAD DELAY CIRCUIT (3msec)
R3506
C3505
C3508
Q3503

Figure 6 Flying Erase Circuit

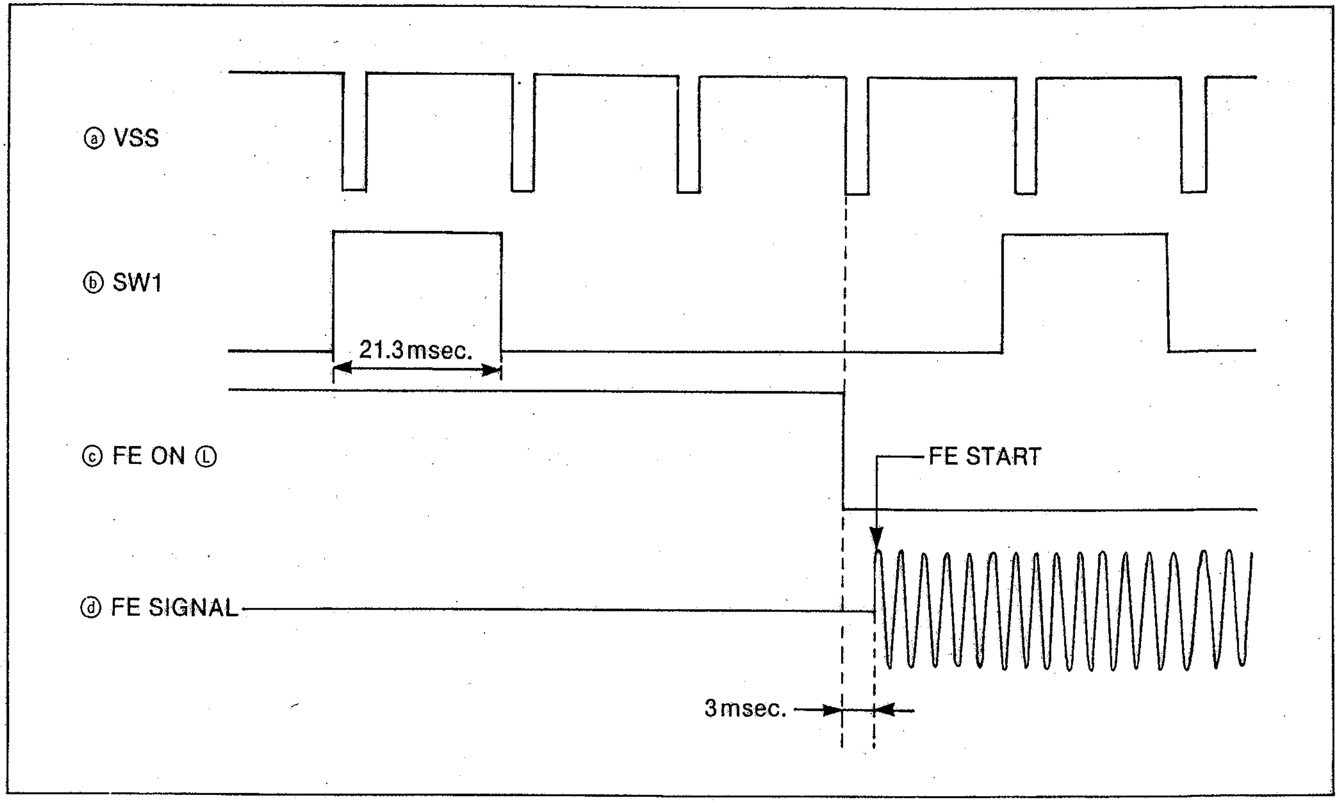

ⓐ VSS
ⓑ SW1
21.3 msec.
ⓒ FE ON Ⓛ
FE START
ⓓ FE SIGNAL
3 msec.

Figure 7 Flying Erase Start Timing

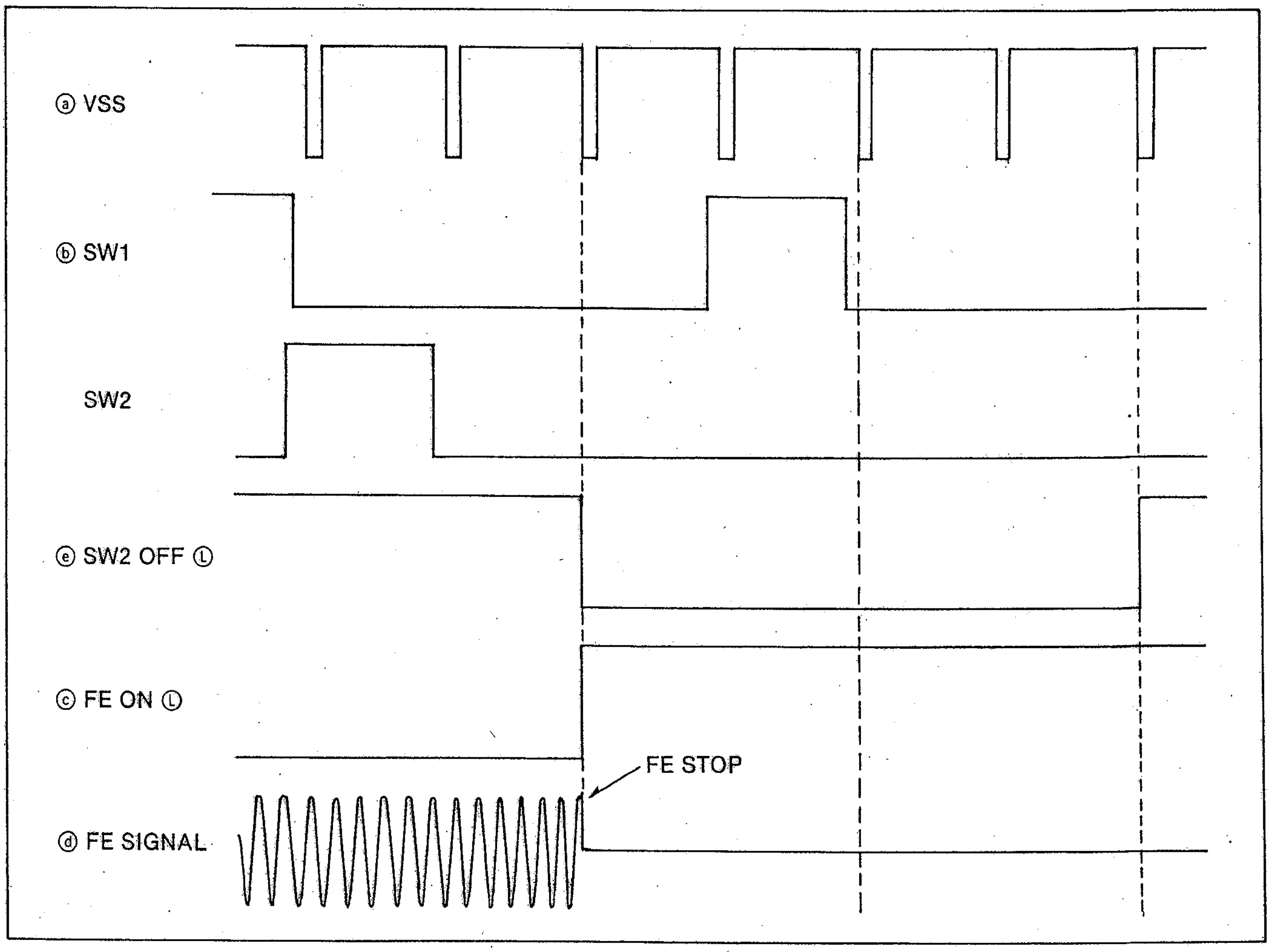

ⓐ VSS
ⓑ SW1
SW2
ⓔ SW2 OFF Ⓛ
ⓒ FE ON Ⓛ
FE STOP
ⓓ FE SIGNAL

Figure 8 Flying Erase Stop Timing

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞.

LEAKAGE CURRENT HOT CHECK (See figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15μF capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

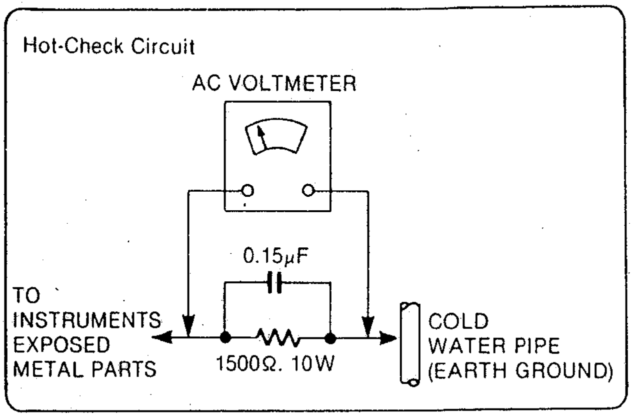

Hot-Check Circuit
AC VOLTMETER
0.15μF
TO INSTRUMENTS EXPOSED METAL PARTS
1500Ω. 10W
COLD WATER PIPE (EARTH GROUND)

Figure 1

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

REGULAR MAINTENANCE

The purpose of periodic maintenance is to preserve the functioning of this machine throughout it's useful life. The user or service dealer should perform these maintenance regularly to ensure that maximum utility is obtained from the machine.

REGULAR MAINTENANCE IS NECESSARY

The VCR is a complicated piece of equipment. It contains many belts, rollers, heads, etc., which become worn, and deteriorate as time goes by, causing trouble. Dust and dirt will also impede the proper functioning of the machine. In light of this, it is very important that overall maintenance be done according to the maintenance chart to maintain the functions of the VCR, and to avoid accidental problems. This maintenance should also be performed after any repairs are done on the equipment.

REGULAR MAINTENANCE IS RECOMMENDED

The VCR used for business applications requires particular attention for several reasons. The installation conditions and applications are not always the best. Long use times, or poor environmental conditions may adversely affect the lifespan and performance of the machine. Regular maintenance assures that the purchaser obtains the maximum value for his expenditure. Accordingly, the necessity of regular maintenance should be fully explained at the time of sale, as well as during after-sale repairs.

MAINTENANCE PARTS LOCATION

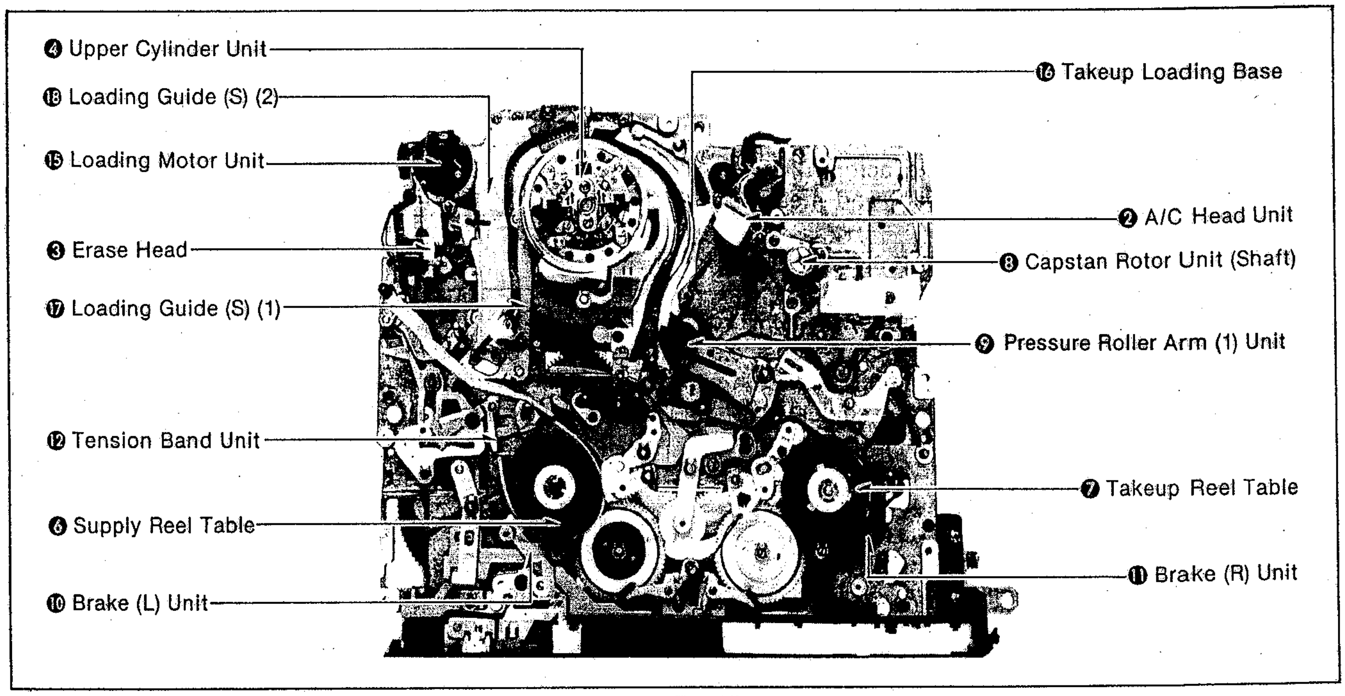

❹ Upper Cylinder Unit
⓲ Loading Guide (S) (2)
⓯ Loading Motor Unit
❸ Erase Head
⓱ Loading Guide (S) (1)
⓬ Tension Band Unit
❻ Supply Reel Table
❿ Brake (L) Unit
⓰ Takeup Loading Base
❷ A/C Head Unit
❽ Capstan Rotor Unit (Shaft)
❾ Pressure Roller Arm (1) Unit
❼ Takeup Reel Table
⓫ Brake (R) Unit

Figure 1 Top View

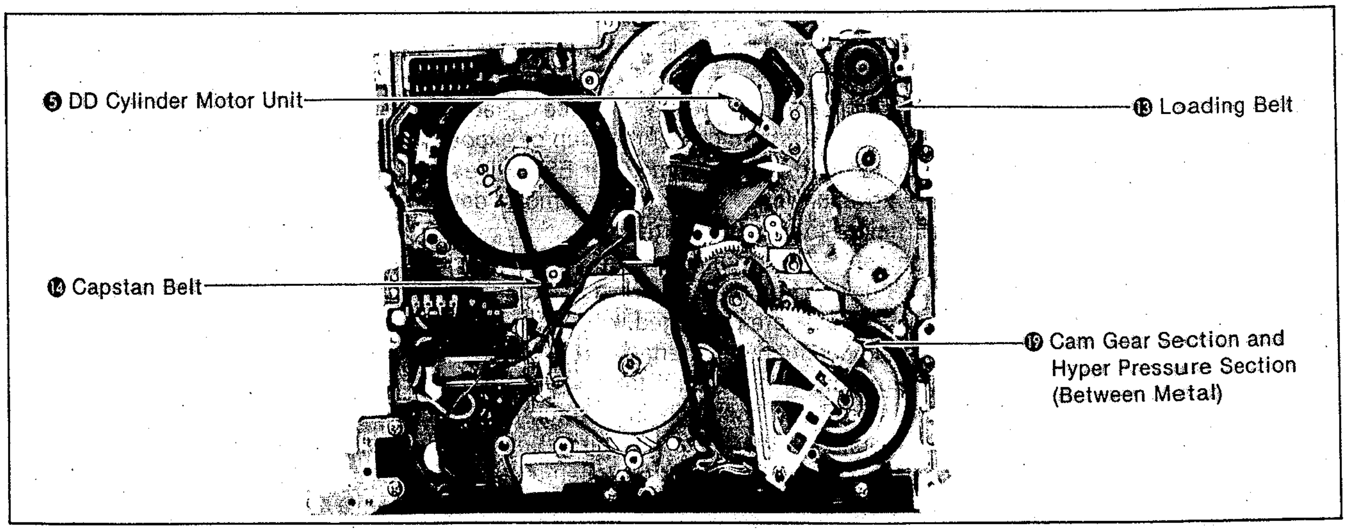

❺ DD Cylinder Motor Unit
⓮ Capstan Belt
⓭ Loading Belt
⓳ Cam Gear Section and Hyper Pressure Section (Between Metal)

Figure 2 Bottom View

MAINTENANCE CHART

Since the parts are keyed to the parts location diagrams, when you replace the following parts, refer to Figures 1 and 2.
The replacement periods of the parts are average of equipment that is used in accordance with the instruction and installation manual.
Note that the periods may vary considerably according to environmental, usage conditions and quality of cassette tape.

	Parts Name	Unit or Part No.	Hour									
			500	1000	1500	2000	2500	3000	3500	4000	4500	5000
❶	Tape Transporters	———	●	●	●	●	●	●	●	●	●	●
❷	A/C Head Unit	VED0047	●	●	●	●	●	●	●	◎	●	●
❸	Erase Head	VBS0021	●	●	●	●	●	●	●	◎	●	●
❹	Upper Cylinder Unit	VEH0374	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
❺	DD Cylinder Motor Unit	VEG0582	●	●	●	●	●	●	●	●	●	◉
❻	Supply Reel Table	VXR0128	●	●	●	●△	●	●	●	●△	●	●
❼	Takeup Reel Table	VXR0171	●	●	●	●△	●	●	●	◎△	●	●
❽	Capstan Rotor Unit (Shaft)	VXP0634	●	●△	●	●△	●	●△	●	●△	●	●△
❾	Pessure Roller Arm (1) Unit	VXL1652	●	◉	●	◎	●	◉	●	◎	●	◉
❿	Brake (L) Unit	VXZ0206				◎				◎		
⓫	Brake (R) Unit	VXZ0207				◎				◎		
⓬	Tension Band Unit	VXZ0245				◎				◎		
⓭	Loading Belt	VDV0167				◎				◎		
⓮	Capstan Belt	VDV0155				◎				◎		
⓯	Loading Motor Unit	VEM0288				◎				◎		
⓰	Takeup Loading Base	VMD1165					■					■
⓱	Loading Guide (S) (1)	VMD0721					■					■
⓲	Loading Guide (S) (2)	VMD1128					■					■
⓳	Cam Gear Section and Hyper Pressure Section (Between Metal)	———								■		

＊ NOTE:

Symbol	Maintenance	Requirement	Remark
●	Cleaning	Freon TF, Ethyl-alcohol or Cleaning Liquid (Purchase locally)	Wipe dirt from the parts using soft cloth impregnated with Freon TF or Ethyl-Alcohol. Note: When cleaning rubber parts, avoid using excessive alcohol since it may accelerate deterioration of these parts. After cleaning with alcohol, wipe the alcohol quickly and thoroughly.
◎	Replacement	———	———
◉	Replacement (In case)	———	If the regular cleaning has not been done.
△	Lubrication	High Quality Spindle Oil (Purchase locally)	Supply one or two drops of oil.
■	Greasing	Molytone Grease (MOR265)	Wipe the old Grease and apply new grease.

DISASSEMBLY PROCEDURES

1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembly steps for the cabinet parts and the P.C. boards in order to find the items necessary for servicing.
When reassembling perform the steps in the reverse order.

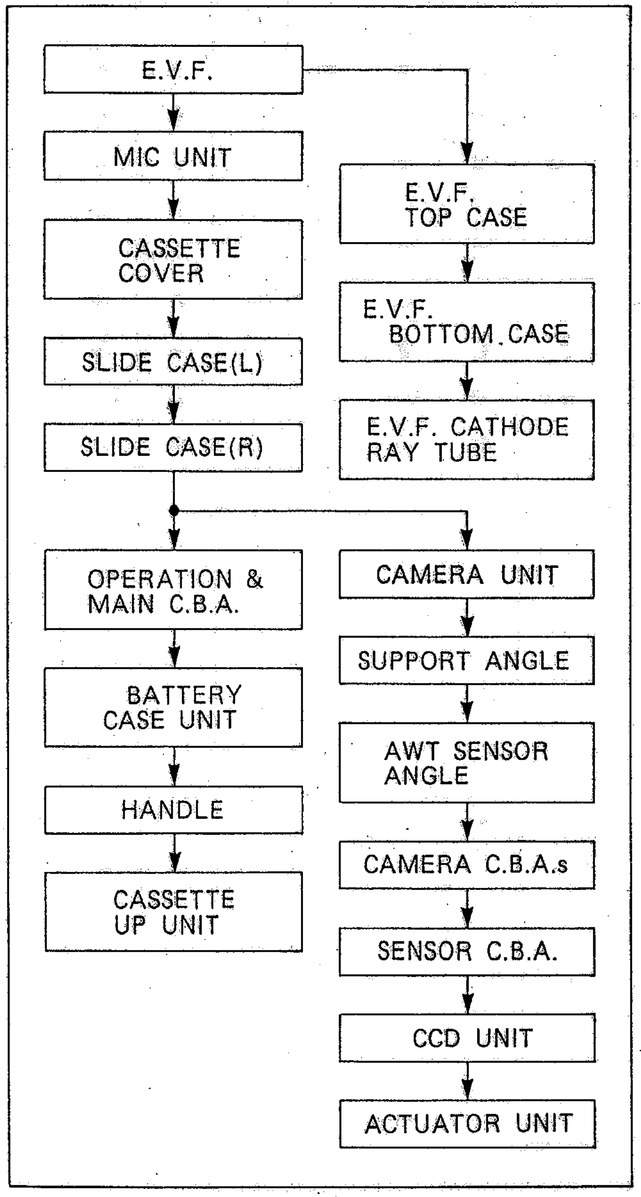

E.V.F.
MIC UNIT
CASSETTE COVER
SLIDE CASE(L)
SLIDE CASE(R)
OPERATION & MAIN C.B.A.
BATTERY CASE UNIT
HANDLE
CASSETTE UP UNIT
E.V.F. TOP CASE
E.V.F. BOTTOM CASE
E.V.F. CATHODE RAY TUBE
CAMERA UNIT
SUPPORT ANGLE
AWT SENSOR ANGLE
CAMERA C.B.A.s
SENSOR C.B.A.
CCD UNIT
ACTUATOR UNIT

Figure D1

Note:
(1) When removing the cabinet, work with care so as not to break the locking tabs.
(2) Place a cloth or some other soft material under the P.C. Boards or Unit to prevent damage.
(3) When re-installing, ensure that the connectors are connected and electrical components have not been damaged.
(4) Do not supply power to the Unit during disassembly.

2. DETAILED DISASSEMBLY METHOD

2-1. Removal of E.V.F. Unit

(1) Remove the E.V.F. Unit connector.
(2) Slide the E.V.F. Unit in the direction shown by the arrow.
(3) Remove the E.V.F. Unit while pushing on the Locking Lever on the Bottom of the Unit.

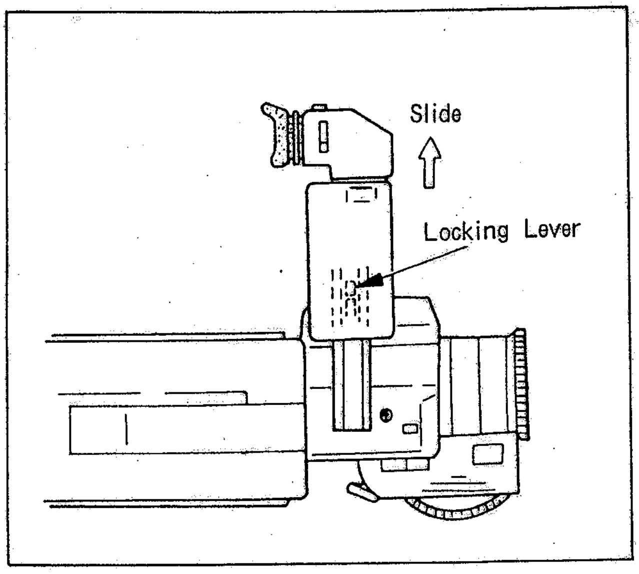

Slide
Locking Lever

Figure D2

2-2. Removal of MIC Unit

(1) Remove 1 Screws (A).
(2) Slide the MIC Unit in the direction shown by the arrow.
(3) Disconnect the connector on the MIC Unit.

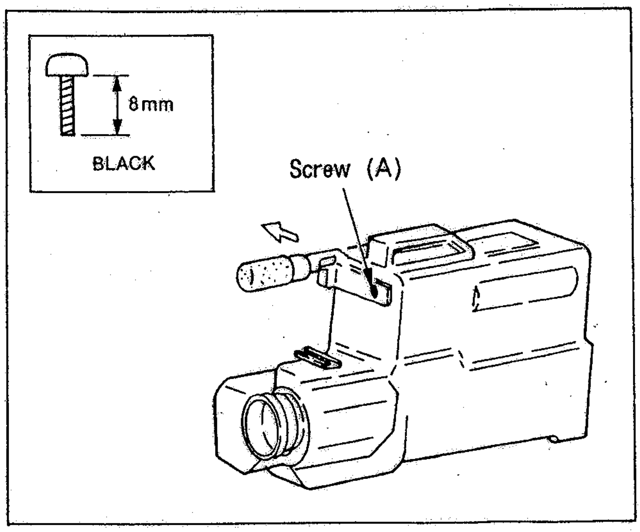

8mm
BLACK
Screw (A)

Figure D3

2-3. Removal of Cassette Cover

(1) Remove 2 screws (B).
(2) Pull the Cassette Cover straight up to remove.

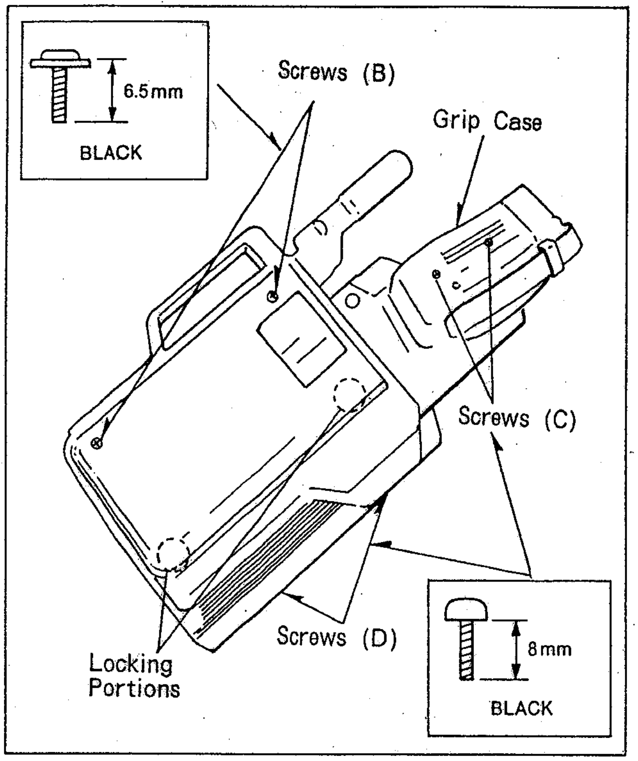

6.5mm
BLACK
Screws (B)
Grip Case
Screws (C)
Screws (D)
Locking Portions
8mm
BLACK

Figure D4

Note:
Be carefull not to damage the Alignment Tabs, when removing or realigning the Cassette Cover.

2-4. Removal of Side Case (R) Unit

(1) Remove 4 screws (E) in Figure D5.
(2) Lift the Side Case (R) Unit slightly. Then disconnect the connectors on the Side Case (R) Unit.

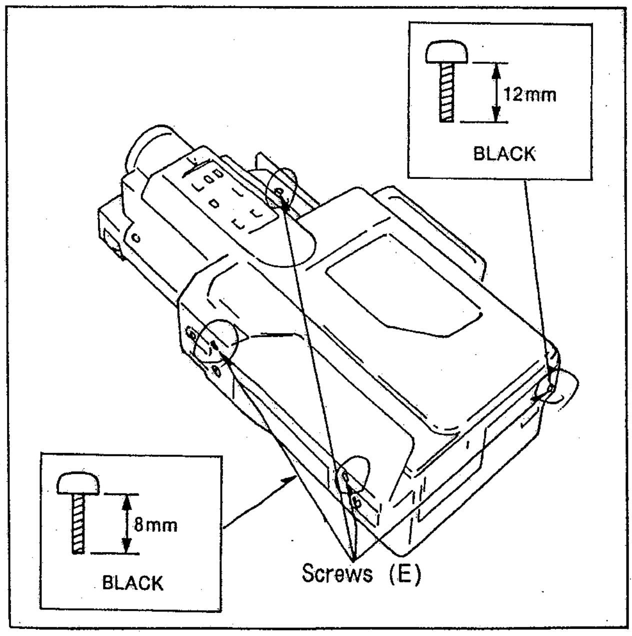

12mm
BLACK
8mm
BLACK
Screws (E)

Figure D5

2-5. Removal of Side Case (L) Unit

(1) Remove 2 screws (C) shown in Figure D4.
(2) Remove 2 screws (D) shown in Figure D4.
(3) Remove the lens hood and remove screw (F) shown in Figure D6.

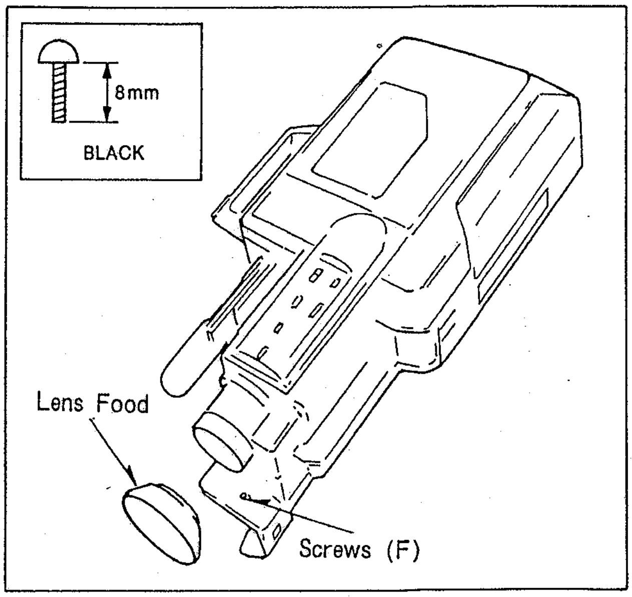

8mm
BLACK
Lens Food
Screws (F)

Figure D6

(4) Lift the Side Case (L) Unit slightly. Then disconnect the connectors on the Side Case (L) Unit.

2-6. Removal of Operation Panel Unit

(1) Unlock 2 locking Tabs (H).
(2) Lift the operation panel unit up slightly.

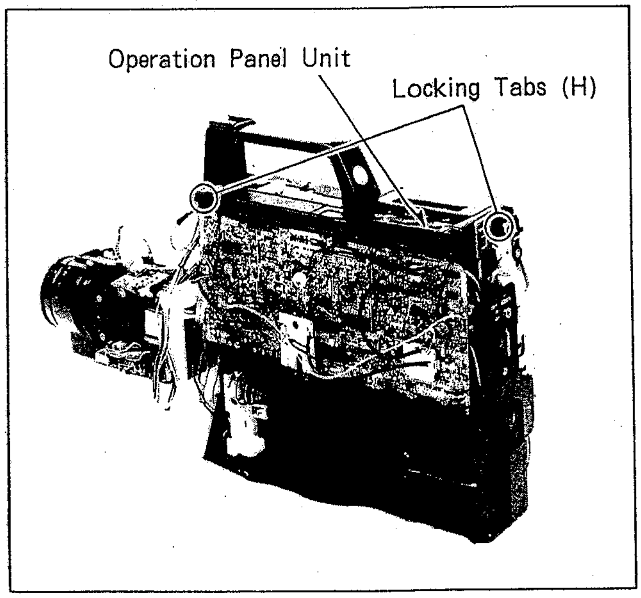

Operation Panel Unit
Locking Tabs (H)

Figure D7

2-7. Opening of Operation C.B.A.

(1) Remove 2 screws (I).
(2) Disconnect P1 on operation C.B.A.
(3) Unsnap 2 locking Tabs (J).
(4) Open Operation/Main C.B.A.

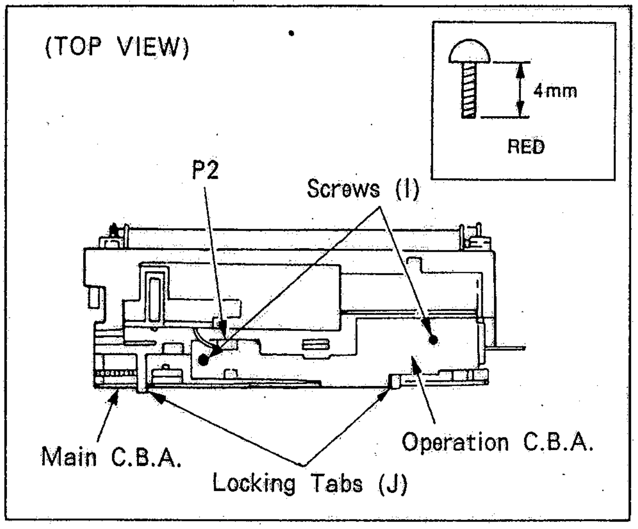

(TOP VIEW)
4mm
RED
P2
Screws (I)
Main C.B.A.
Operation C.B.A.
Locking Tabs (J)

Figure D8

2-8. Opening of Battery Case Unit

(1) Open Main/Operation C.B.A. as shown in Figure D9.
(2) Remove 3 screws (K). Then lift the Battery Compartment slightly in order to release it from the locking pin.
(3) Loosen wires located around the Battery Compertment.

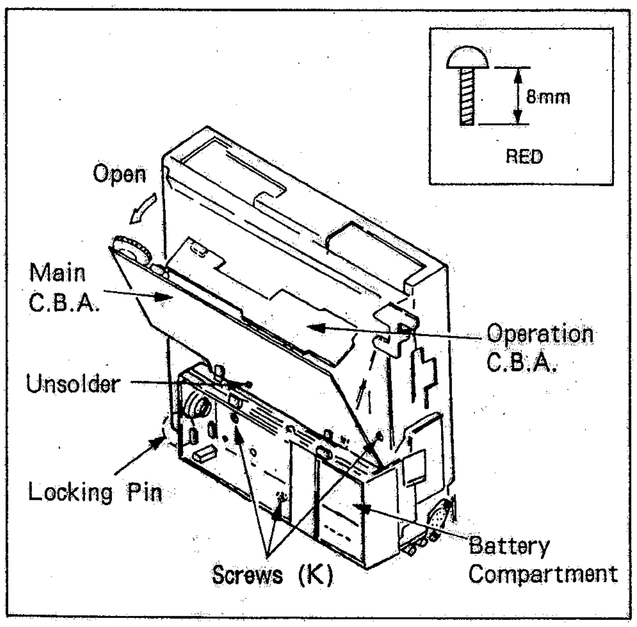

8mm
RED
Open
Main C.B.A.
Operation C.B.A.
Unsolder
Locking Pin
Screws (K)
Battery Compartment

Figure D9

2-9. Removal of Handle Unit

(1) Slightly loosen 4 screws (L).
(2) Remove the Handle unit.

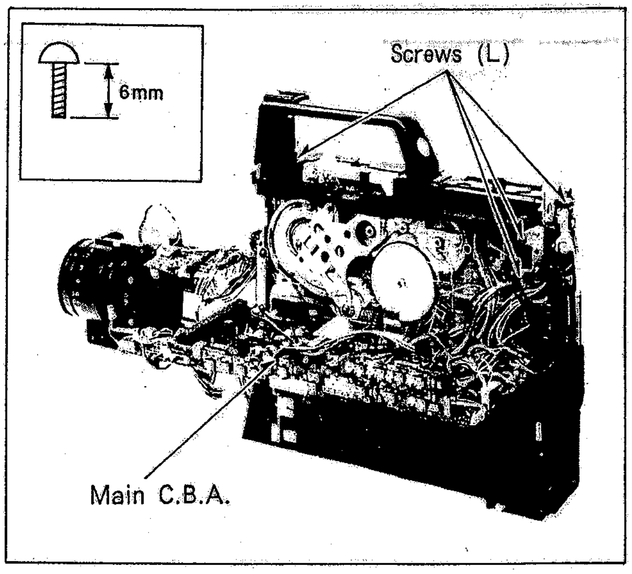

6mm
Screws (L)
Main C.B.A.

Figure D10

2-10. Removal of Cassette Compartment

(1) Remove 4 screws (M).
(2) Remove the cassette up unit.

Note:
When reinstalling the cassette up unit, install it in the closed (cassette down) condition.

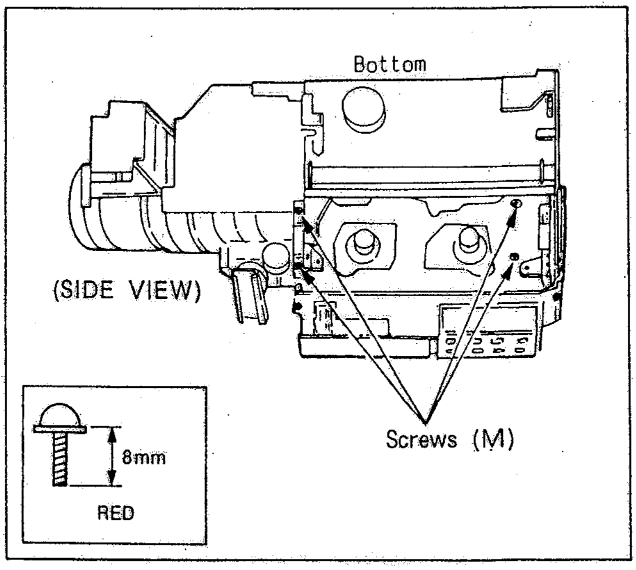

Bottom
(SIDE VIEW)
8mm
RED
Screws (M)

Figure D11

2-11. Removal of Camera Unit

(1) Remove 2 screws (N).
(2) Disconnect connector P3004 and flexible connector P3003 on Main C.B.A.

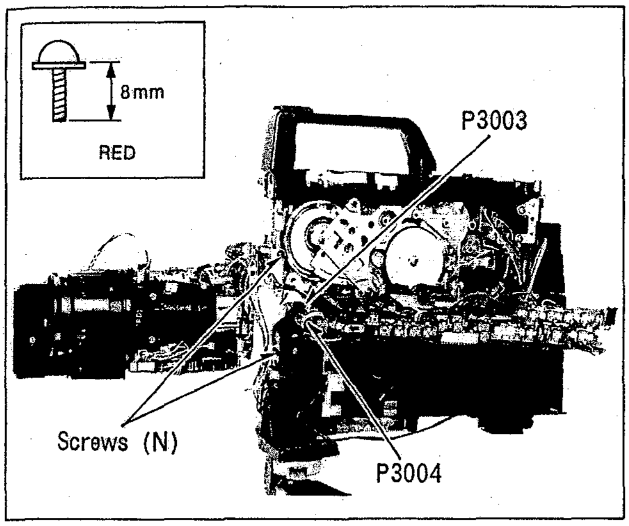

8mm
RED
P3003
Screws (N)
P3004

Figure D12

2-12. Removal of Support Angle

(1) Remove 2 screws (O).
(2) Remove Support Angle.

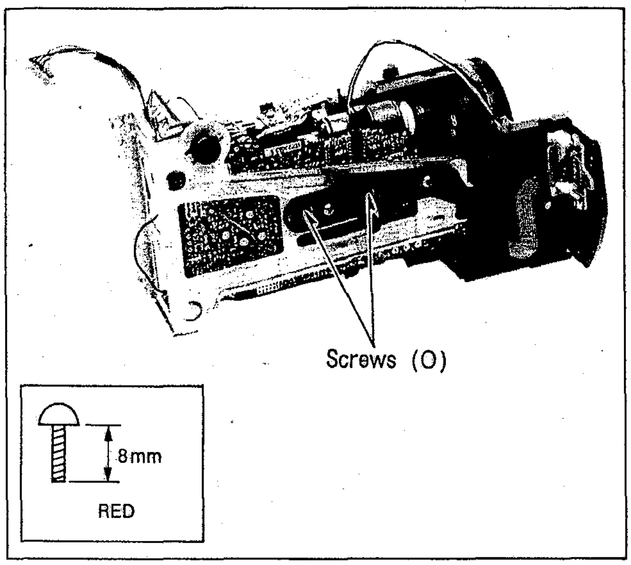

Screws (O)
8mm
RED

Figure D13

2-13. Removal of AWT Sensor Support Angle

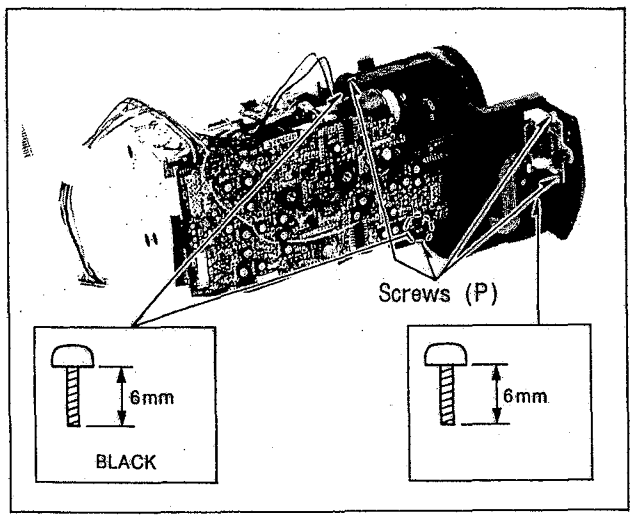

Screws (P)
6mm
BLACK
6mm

Figure D14

(1) Remove 3 screws (P).
(2) Remove AWT Sensor Support Angle.

2-14. Removal of Camera C.B.A.

(1) Remove 6 screws (Q) on Auto Focus and Process C.B.A's.
(2) Disconnect Connectors B3202 and B301 on process C.B.A.
(3) Remove Auto Focus and Process C.B.A.

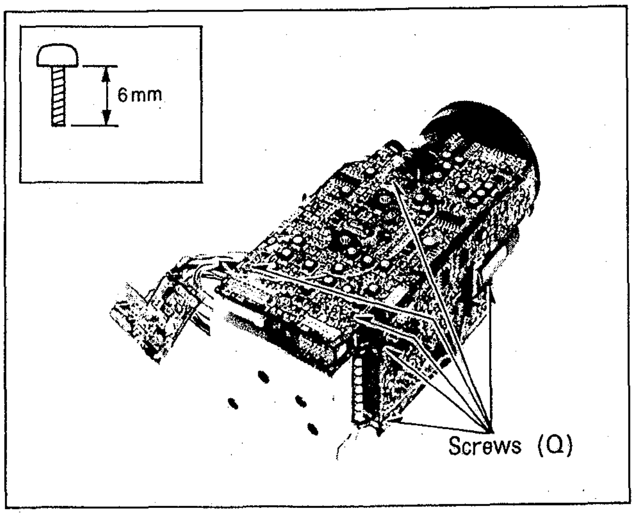

6mm
Screws (Q)

Figure D15

2-15. Removal of Sensor C.B.A.

(1) Remove the 3 screws (R).
(2) Remove Shield Case.

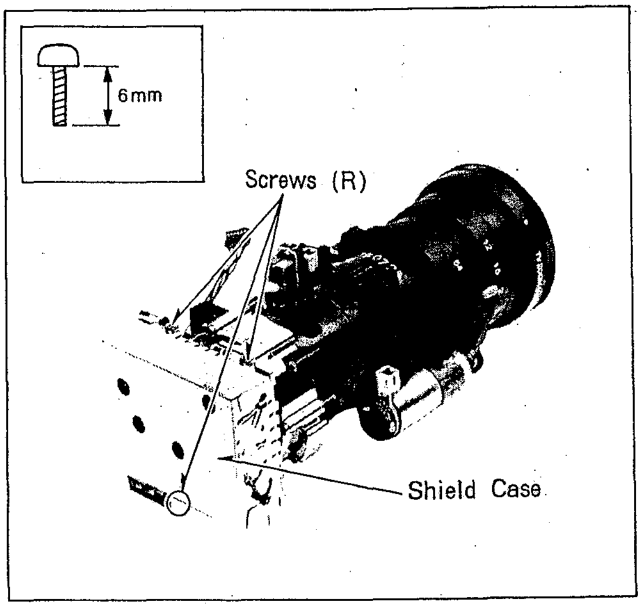

6mm
Screws (R)
Shield Case

Figure D16

(3) Remove 2 screws (S) on sensor C.B.A.
(4) Remove Sensor C.B.A. then remove flexible wire FP201. on Sensor C.B.A.

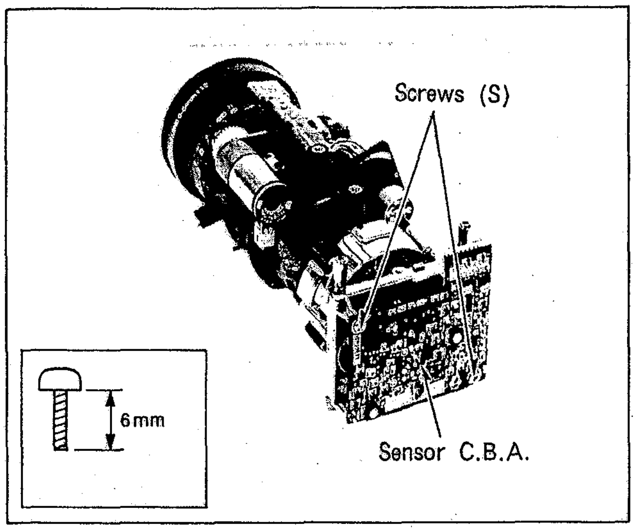

Screws (S)
6mm
Sensor C.B.A.

Figure D17

2-16. Removal of CCD Unit

(1) Remove 2 screws (T) then take out the Shield Case.
(2) Remove 3 screws (U) then take out the Shield Case.
(3) Remove 2 screws (V) then take out the CCD Unit.

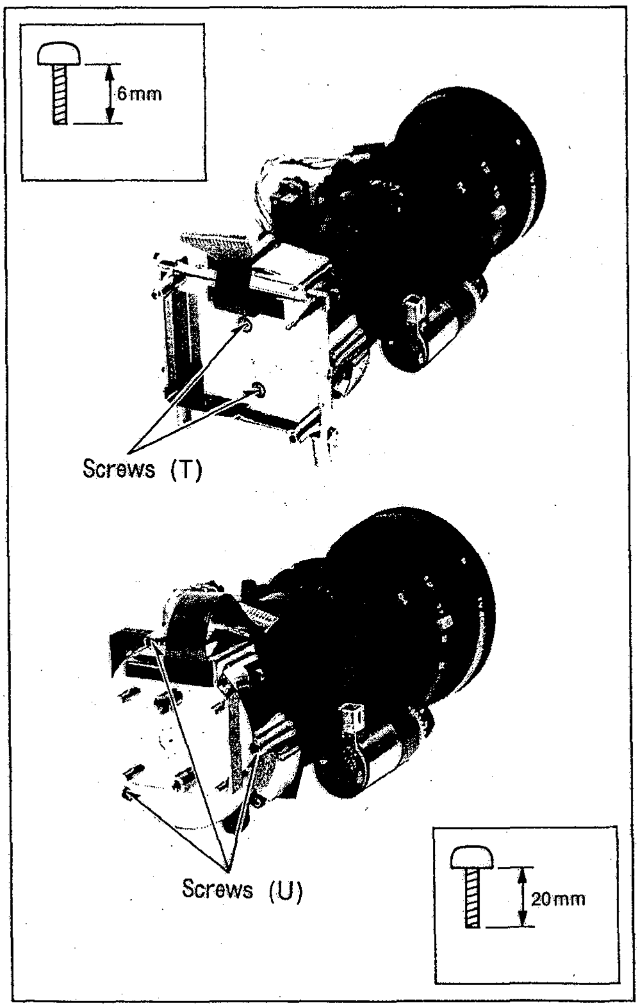

6mm
Screws (T)
Screws (U)
20mm

Figure D18

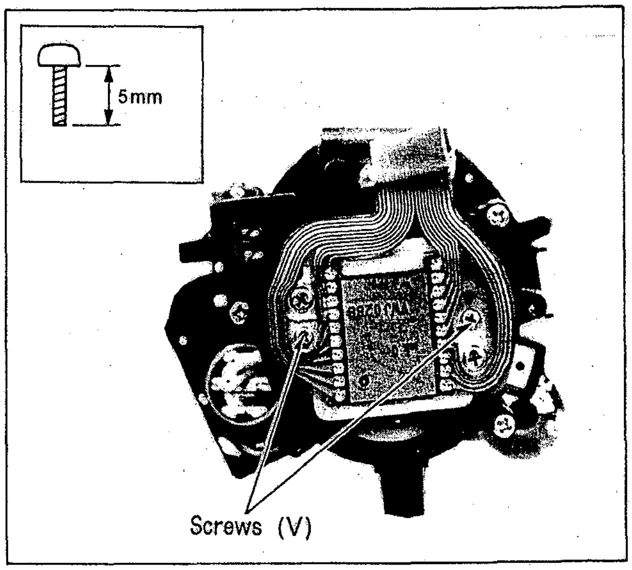

5mm
Screws (V)

Figure D19

2-17. Removal of Actuator Unit

(1) Remove 3 screws (W) and remove actuator unit.

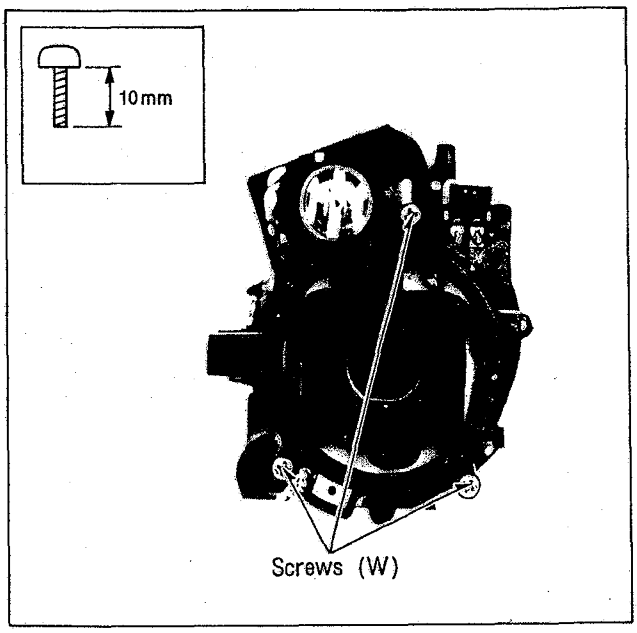

10mm
Screws (W)

Figure D20

2-18. Disassembly of E.V.F. Unit

(1) Remove 2 screws (A) on the bottom of the E.V.F Unit and then remove the Bottom Case.
(2) Remove CRT Case–B from CRT Case–A as shown in Figure D21.
(3) Lift the CRT Assembly up as shown in Figure D22.
(4) Rotate Nut (B) and then pull DY Assembly in the direction shown in Figure D23 to remove it. Then the CRT can be replaced.
(5) For reinstallation, reverse the above steps.

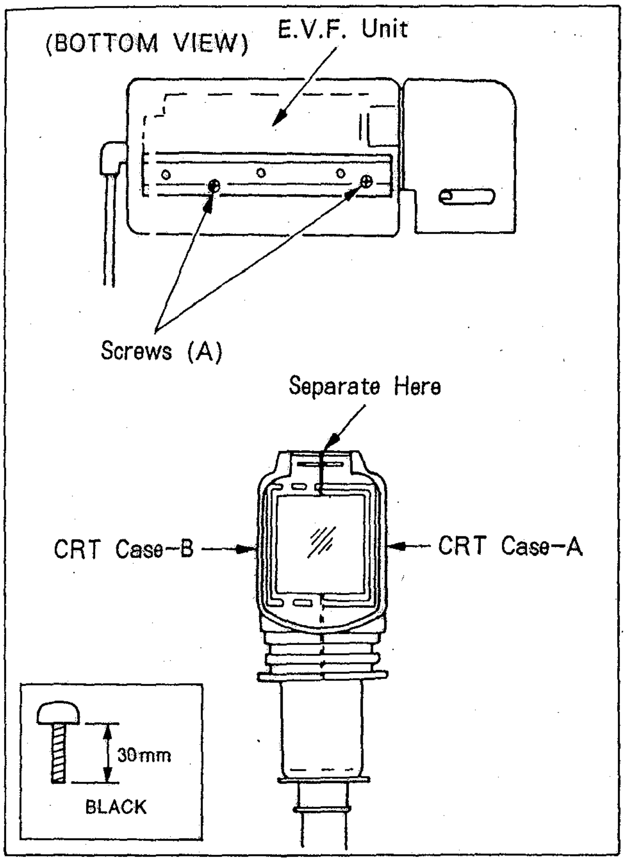

(BOTTOM VIEW)
E.V.F. Unit
Screws (A)
Separate Here
CRT Case-B
CRT Case-A
30mm
BLACK

Figure D21

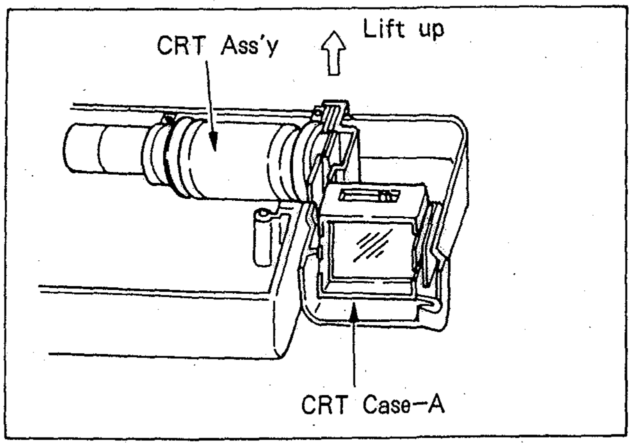

CRT Ass'y
Lift up
CRT Case-A

Figure D22

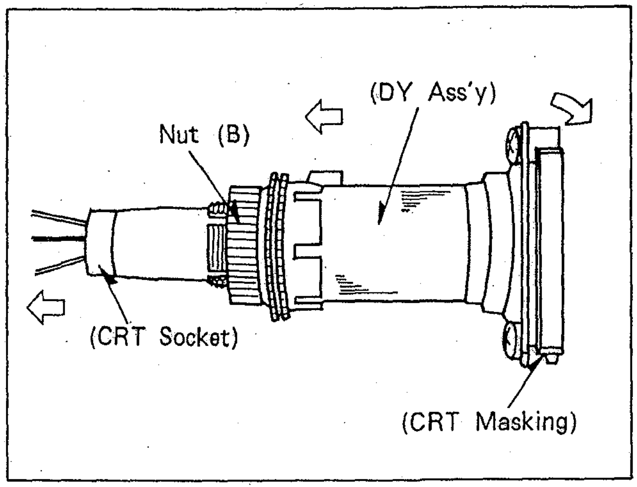

(DY Ass'y)
Nut (B)
(CRT Socket)
(CRT Masking)

Figure D23

REPLACEMENT PROCEDURES

1. REPLACEMENT OF CCD UNIT

(1) After removing of the CCD unit install the new CCD unit.
(2) Assemble the unit subject to the reverse steps of disassembly procedures.

NOTE:
(1) Do not touch the sureface of CCD unit.
(2) Confirm the whole adjustment procedures for Camera section after replacing this CCD unit.

2. REPLACEMENT OF ZOOM MOTOR UNIT

(1) Remove 2 screws (C) and remove Zoom Motor Unit.
(2) Install the new Zoom Motor Unit.
Prior to this replacement, no dust around the Zoom Motor, especially around the gear unit should be confirmed.

3. REPLACEMENT OF FOCUS MOTOR UNIT

(1) Remove the 2 screws (D) and remove the Focus Motor Unit.
(2) Install the new Focus Motor Unit.
Prior to this replacement, no dust around the Focus Motor Unit, especially around the gear should be confirmed.
(3) After this replacement, all the correct adjustments for all parts of auto-focus should be comfirmed.

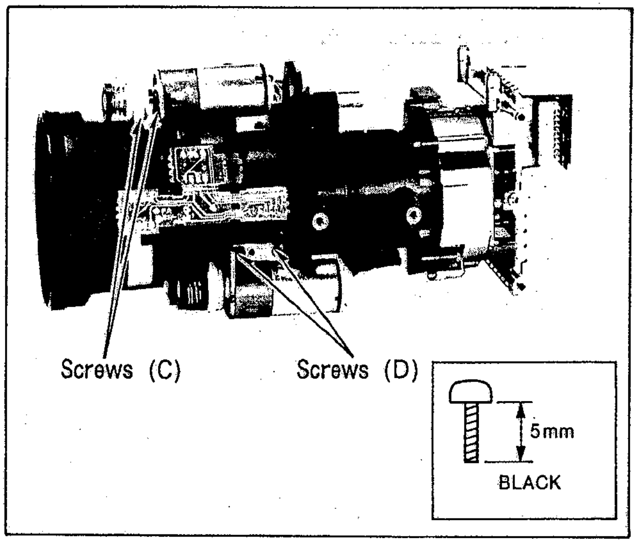

Screws (C)
Screws (D)
5mm
BLACK

Figure R1

4. REPLACEMENT OF DD CYLINDER UNIT

Work with extreme care when removing or replacing the DD cylinder unit.
Do not touch video heads during servicing.

(1) Remove the screw (E) to take the Earth Holder Unit out.

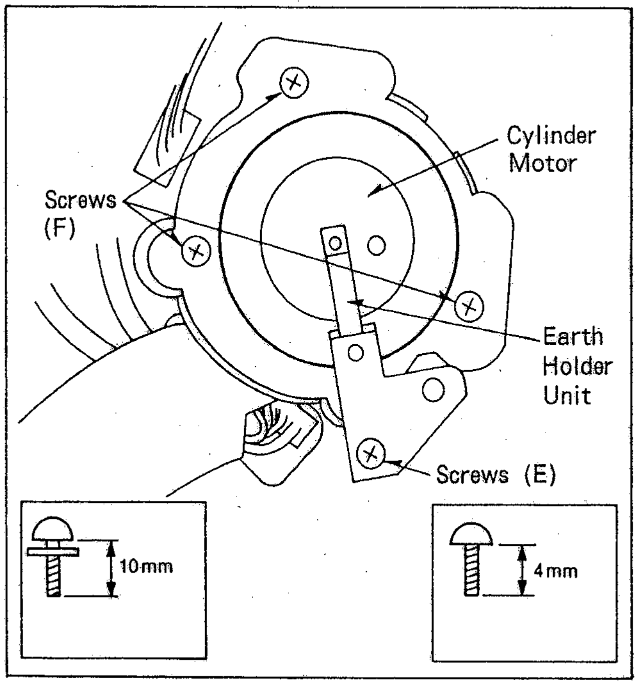

Cylinder Motor
Screws (F)
Earth Holder Unit
Screws (E)
10mm
4mm

Figure R2

(2) Remove the 3 screws (F) to take DD cylinder unit out.

NOTE :
Since there is very little clearance between DD cylinder unit and chassis,handle with care.

(3) Reinstall the new DD cylinder unit, tighten the 3 screws (F).

5. REPLACEMENT OF UPPER CYLINDER UNIT

Be sure to observe the following procedures when replacing Upper Cylinder Unit.

(1) REMOVING THE UPPER CYLINDER UNIT

a. Remove the 2 screws as shown in Figure R3.
b. Unsold the 10 soldered portions indicated by arrows on Circuit Board.
c. Remove the Upper Cylinder Unit by lifting it upwards.

NOTE:
Soldered portion can be easily removed by using solder sucking wire, etc.

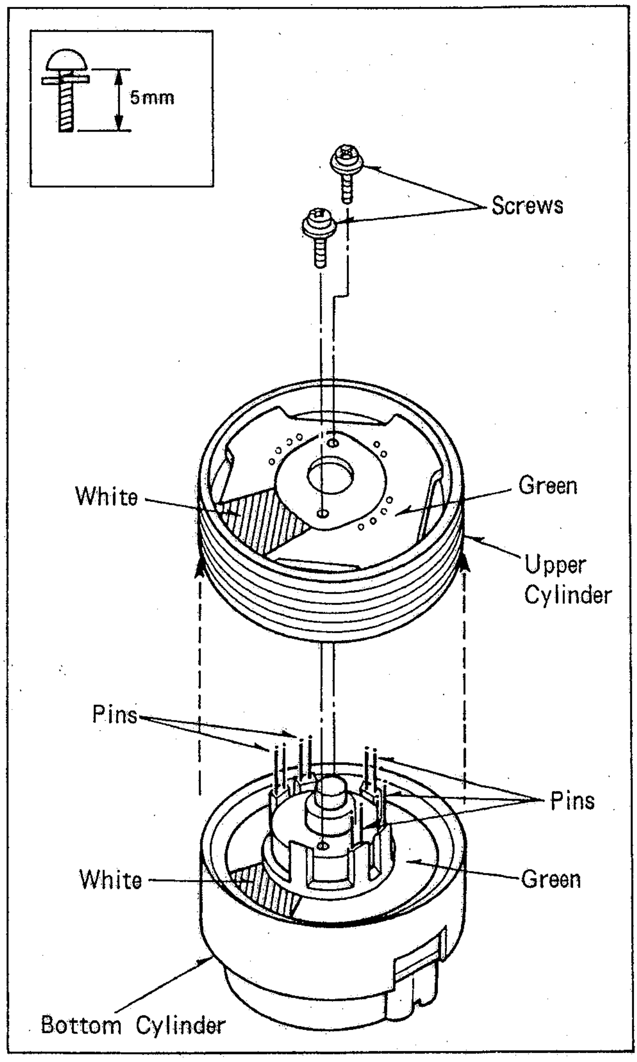

5mm
Screws
White
Green
Upper Cylinder
Pins
Pins
White
Green
Bottom Cylinder

Figure R3

(2) REINSTALLING THE UPPER CYLINDER UNIT

The Upper Cylinder Unit can be reinstalled by reversing the removal procedure. However, when reinstalling, it must be extremely careful so that both the white and green portions of the Circuit Board on the Upper Cylinder Unit will correctly match the white and green portions of the Circuit Board on Bottom Cylinder as shown in Figure R4.

NOTE:
If the Upper Cylinder Unit is reversely installed, no colour will appear when playing back a pre-recorded tape.

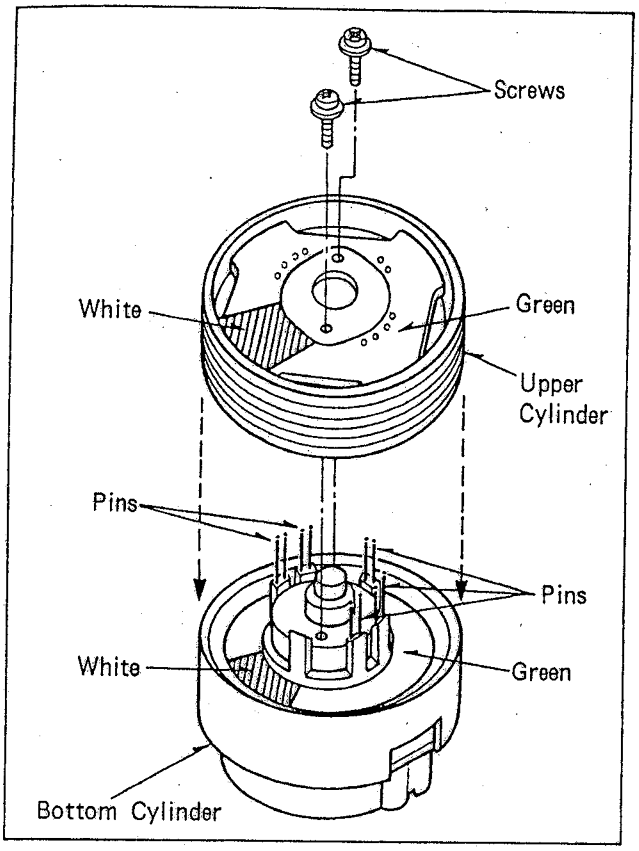

Screws
White
Green
Upper Cylinder
Pins
Pins
White
Green
Bottom Cylinder

Figure R4

6. REPLACEMENT OF CAPSTAN STATOR UNIT

* Equipment Required:
Reel Table Height Gauge (VFKS0009)
* Specification:...........0.5+–0.05mm

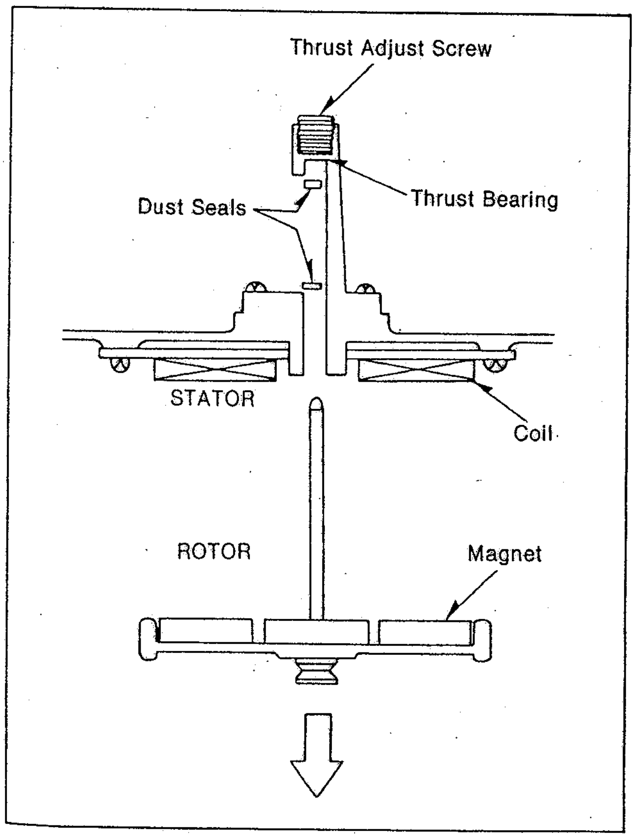

Thrust Adjust Screw
Dust Seals
Thrust Bearing
STATOR
Coil
ROTOR
Magnet

Figure R5

(1) Remove the 2 screws and take belt cover off. After that remove the capstan belt.
(2) Tighten the Thrust Adjust Screw fully and pull the capstan rotor.

Note:
In this time pay attention not to lose two pieces of Dust Seal.

(3) Replace the new rotor with two pieces of Dust Seal.

Note:
(1) Pay attention to the replaced new rotor not to shock because of magnet absorbtion. So hold the rotor firmly and replace it carefully.
(2) In this replacement, do not touch the Capstan shaft with any hard material like drivers or tweezers.

(4) After replacement, wipe off the Capstan shaft to remove oil, grease or dust.
(5) Unscrew Thrust Adjust Screw till the rotor is just touching to the stator.
(6) Turn this mechanism upside down and place the Reel Table Height Gauge so that the gauge fits to the chassis correctly, and read the height.
(7) Adjust the Thrust Adjust Screw so that the height difference just meets in the specification (0.5+–0.05mm) reading the height from the gauge.

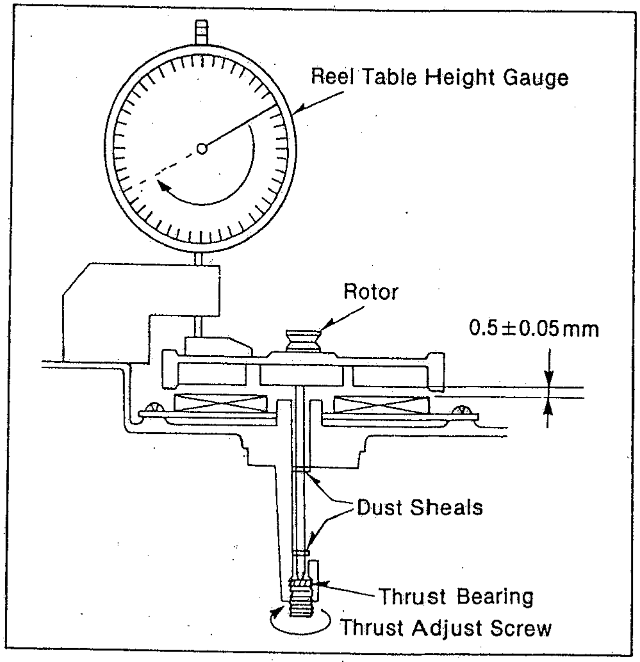

Reel Table Height Gauge
Rotor
0.5±0.05mm
Dust Sheals
Thrust Bearing
Thrust Adjust Screw

Figure R6

Note:
If the Thrust Adjust Screw is fully opened, you have to pay attention not to lose Thrust Bearing.
When it is fixed, confirm that the direction of Thrust Bearing is correct as shown below.

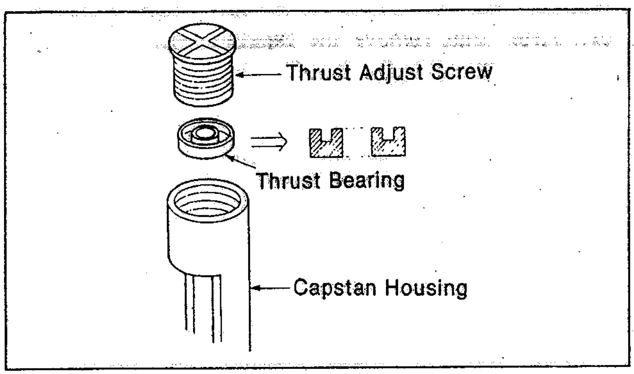

Thrust Adjust Screw
Thrust Bearing
Capstan Housing

Figure R7

7. REPLACEMENT OF TENSION BAND

(1) Remove the cassette conpartment.
(2) Remove a retaining ring and take out a Rew Arm (A) Unit.
(3) Remove a retaining ring and a snap washer and take out a tension Band Unit.

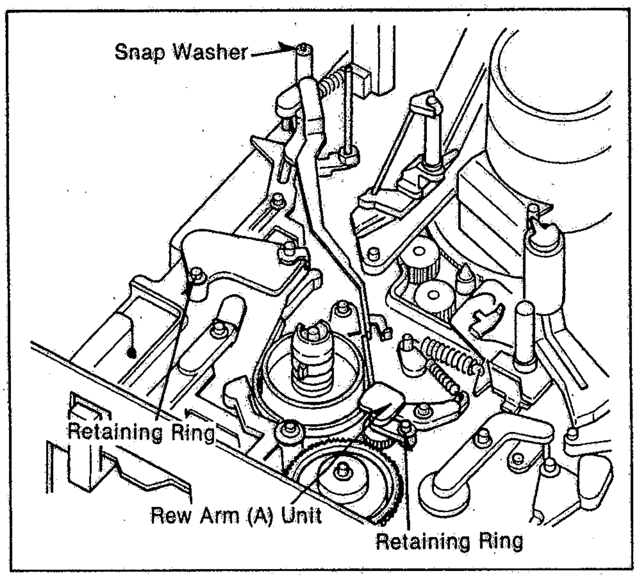

Snap Washer
Retaining Ring
Rew Arm (A) Unit
Retaining Ring

Figure R8

(4) Remove a Tension Band from Band Release Arm and Tension Arm Unit.

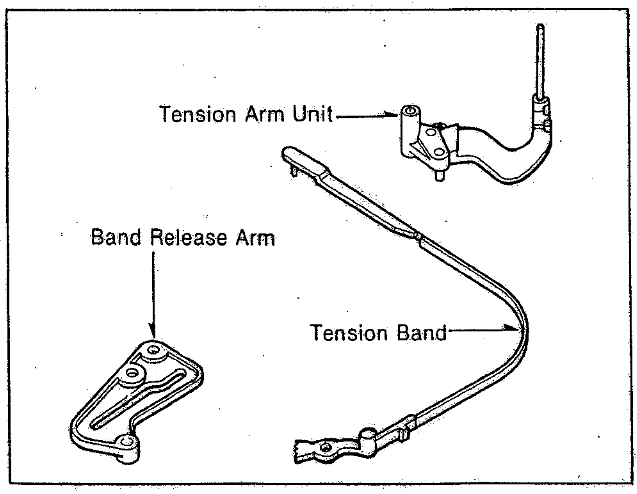

Tension Arm Unit
Band Release Arm
Tension Band

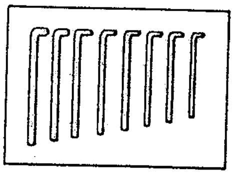
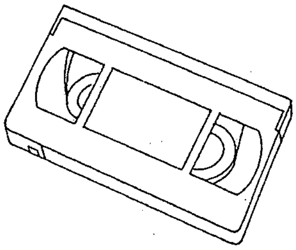
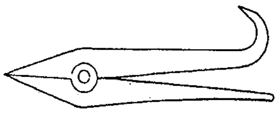
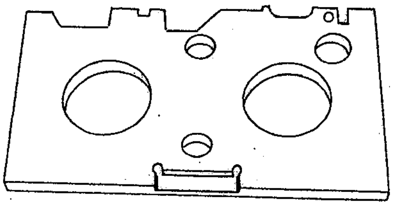
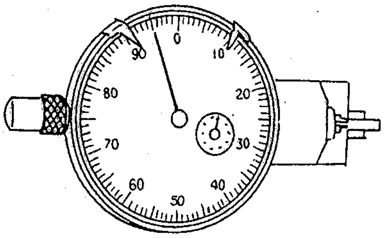
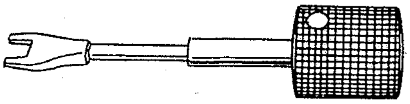
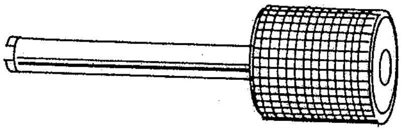
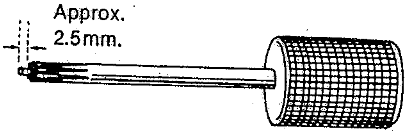
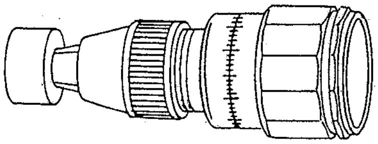
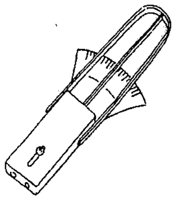
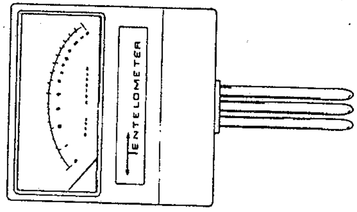
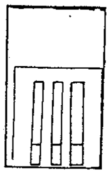
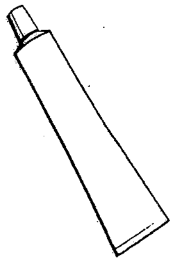
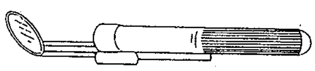
Figure R9

(5) Replace a new Tension Band by Proceeding reverse steps shown above.

Memo

MECHANICAL ADJUSTMENT PROCEDURES

1. SERVICING FIXTURES & TOOLS

VFK0326 Hex. Wrench Set (0.7, 0.9, 1.2, 1.5, 1.6, 2, 2.4, 3mm) 	VFM8080HMFPH VHS Alignment Tape 	VFK0335 Retaining Ring Remover (3mm/4mm) 
VFKS0010 or VFK0191 Post Adjustment Plate 	VFKS0009 or VFK0190 Reel Table Height Gauge  	VFKS0003 or VFK0328 H-Position Adj. Fixture 
VFK0329 Post Adjustment Screwdriver 	VFK0157 Fine Adjustment Screwdriver  Grind the top portion approximately 2.5mm.	VFK0133 Dial Torque Gauge VFK0134 Adaptor for VFK0133 VFK0180 (Plastic Clamper Only) 
VFK66 Fan Type Tension Gauge 	VFK0132 Back Tension Meter (TZ-H7-UM). (Tentelometer, Made in U.S.A.)  	VFK27 Head Cleaning Stick 
MOR265 Morlytone Grease 	VFK0343 Check Light 	High Quality Machine Oil <Purchase Locally> (Reel Shaft, Capstan Shaft etc.) Cleaning Liquid (Freon TF., Alchol) <Purchase Locally> (Tape Transport Rubber Parts etc.)

2. PROCEDURE FOR CLEANING OF UPPER CYLINDER UNIT

(1). Position the video head to clean and hold the upper cylinder to keep it from turning while cleaning.
(2). Gently rub the video head in direction of tape travel whith Head Cleaning Stick.
(3). Repeat for the other three video heads.

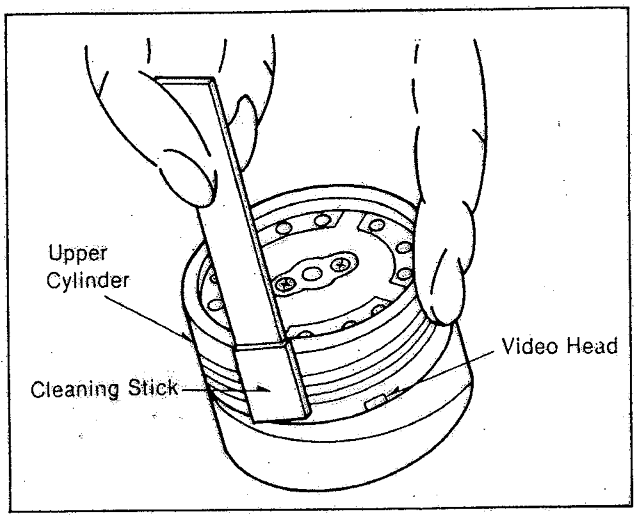


Figure CL1

Note:
(1) Do not rub vertically.
(2) Do not apply any pressure to heads.
If contamination is not easily removed, continued gentle wiping will usually remove the substance.

3. TAPE INTERCHANGEABILITY ADJUSTMENT PROCEDURES

3-1. ADJUSTMENT FLOW CHART

This flow chart describes the order of steps for adjusting the tape guide posts and A/C head in order to gain access to the items needing servicing.

AFTER REINSTALLING THE P1 POST, OR IF THE P1 POST HAS BEEN TURNED EXCESSIVELY.

↓

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

* **Note:**
Adjust the tape guide post P1 only.

↓

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

↓

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY).

AFTER REINSTALLING THE UPPER CYLINDER OR CYLINDER UNIT.

↓

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT.

↓

3-2-9. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

* **Note:**
Do not change the height of the P1 and P4 posts and position of the A/C head.

AFTER REINSTALLING ALL POSTS OR IF ALL POSTS HAVE BEEN TURNED EXTREMELY.

↓

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

↓

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

↓

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST) HEIGHT.

↓

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

↓

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT.

AFTER REINSTALLING THE A/C HEAD.

↓

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

* **Note:**
Do not change the height of P4 post.

↓

3-2-6. COARSE ADJUSTMENT OF THE A/C HEAD HEIGHT.

↓

3-2-7. ADJUSTMENT OF THE A/C HEAD HEIGHT AND AZIMUTH.

↓

3-2-8. COARSE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

↓

3-2-9. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

AFTER REINSTALLING THE P4 POST, OR IF THE P4 POST HAS BEEN TURNED EXCESSIVELY.

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

* **Note:**
Adjust the P4 post only.

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

* **Note:**
Adjust the P4 post only.

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY).

AFTER REINSTALLING THE PULL-OUT POST (P5 POST).

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST).

* **Note:**
Do not readjust any other post.

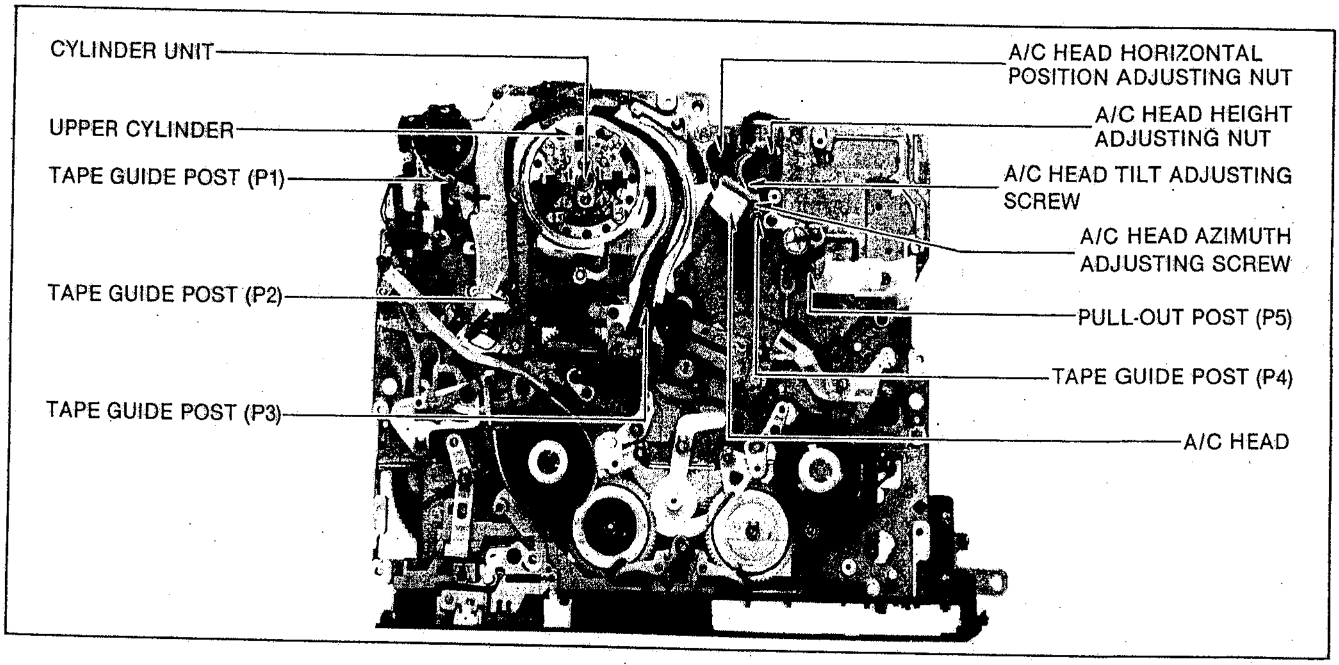

CYLINDER UNIT
UPPER CYLINDER
TAPE GUIDE POST (P1)
TAPE GUIDE POST (P2)
TAPE GUIDE POST (P3)
A/C HEAD HORIZONTAL POSITION ADJUSTING NUT
A/C HEAD HEIGHT ADJUSTING NUT
A/C HEAD TILT ADJUSTING SCREW
A/C HEAD AZIMUTH ADJUSTING SCREW
PULL-OUT POST (P5)
TAPE GUIDE POST (P4)
A/C HEAD

Figure M1

3-2. ADJUSTMENT PROCEDURES

3–2–1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS (P1, P2, P3 AND P4)

* Equipment Required:
Post Adjustment Plate....................VFK0191
Reel Table Height Gauge..................VFK0190
Nut Driver (Purchase locally)
Post Adjustment Screwdriver..............VFK0329

1. Remove the cassette compartment from the mechanical chassis.
2. Place the Post Adjustment Plate over the reel tables.

(Figure M1)
Confirm that the Post Adjustment Plate is firmly seated.

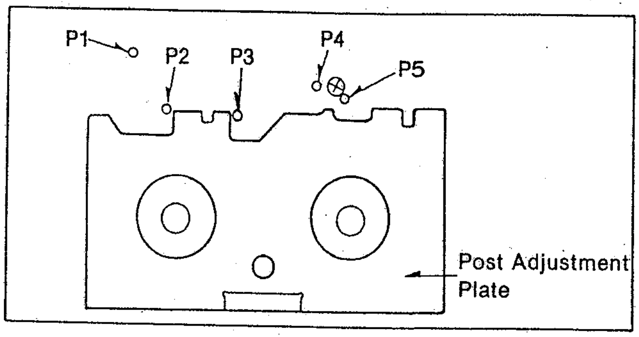

P1
P2
P3
P4
P5
Post Adjustment Plate

Figure M1

3. Remove the post cap on post P4.
4. Lower all 4 tape guide posts so that the lower tape guide on each post is below the top surface of the adjustment plate.
   Use the post Adjustment screwdriver to lower posts P2 and P3, and the Nut Driver to lower Posts P1, P4 and P5.
5. Place the Reel Table Height Gauge on the Post Adjustment Plate and lower the scraper so that it touches the plate. (Figure M2)

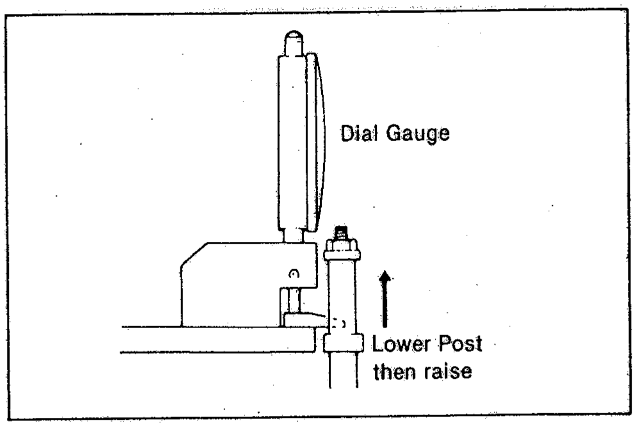


Figure M2

6. Place the side of the scraper against the each post as shown in Figure M3, set the gauge to zero, then slowly raise the post until the lower tape guide just touches the bottom of the scraper. Use the gauge to determine the exact point at which the lower tape guide touches the scraper. (Figure M3)

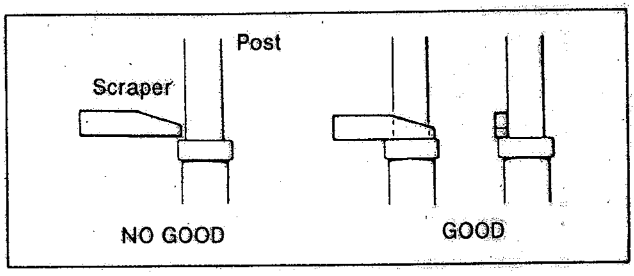


Figure M3

3–2–2. CONFIRMATION OF THE TAPE TRANSPORT (TAPE GUIDE POSTS)

* Note:
1. The tape guide posts have been precisely adjusted at the factory. Therefore, normally do not change the height of P1, P4 and P5 posts. The following adjustment is required only when replacing the posts.
2. If curling is apparent proceed to the P4 post, wipe dirt from the pressure roller and capatan shaft using a soft cloth impregnated with Freon TF or cleaning liquid.
3. The adjustment of the post height is required only the one which has been replaced.

* Equipment Required
Post Adjustment Screwdriver.............VFK0329
Check Light...........................VFK0343
Nut Driver (Purchase locally)

1. To prevent the alignment tape from being damaged, use a normal cassette tape for this procedure.
   Playback the normal cassette tape and confirm that the tape travels without any curling at the edges of all the posts by using the check light. (Figures M4 and M5)

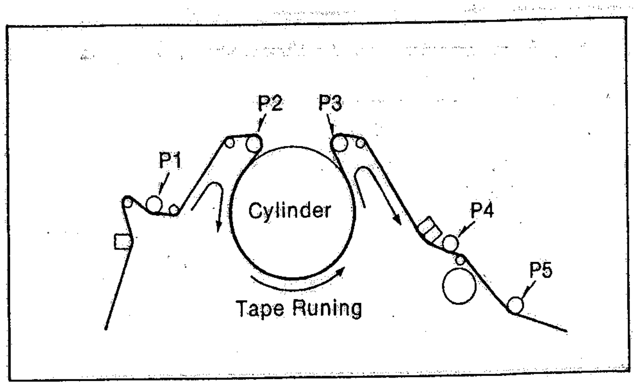


Figure M4 Tape Transport Posts

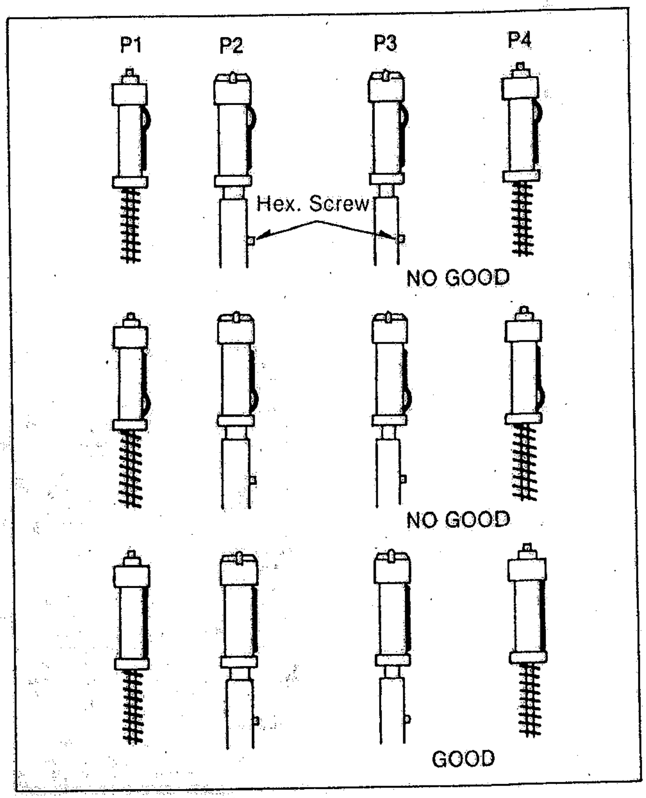


Figure M5 Tape Guide Posts

2. If curling is apparent, adjust the height of posts by turning the top of post with the post adjustment screwdriver (Posts P2 and P3) or the nut driver (Posts P1 and P4). (Figures M4 and M5)
3. After adjusting the P4 post, adjustment of the pull–out post (P5) is required.
   (Refer to "ADJUTMENT OF THE PULL–OUT POST HEIGHT".)
4. If the tape curling cannot be corrected by adjusting the tape guide posts, then adjustment of the A/C head tilt may be needed.

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST) HEIGHT

* Notes:

1. This adjustment should be performed only after adjusting tape guide post P4 as the height of the pull-out post is based on the height of post P4.

* Tools and Equipment Required:
Post Adjustment Plate....................VFK0191
Reel Table Height Gauge..................VFK0190
Check Light.............................VFK0343
Nut Driver (Purchase locally)

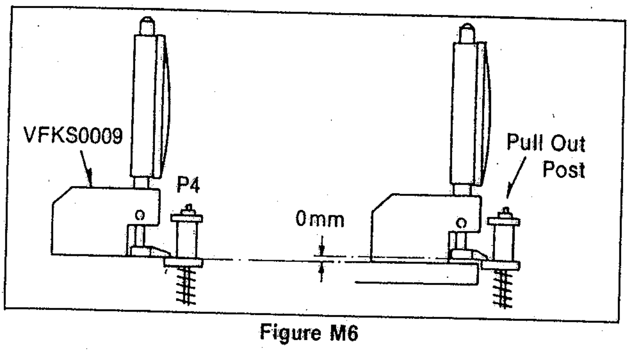


Figure M6

1. Remove the cassette compartment by unscrewing 4 screws. Unit.
2. Place the Post Adjustment plate over the reel tables.
3. Place the Reel Table Height Gauge on the tape guide post P4, lower the scraper so that it touches the lower edges of P4, then set the gauge to zero ("0"). (Figure M6)
4. Slightly lower the pull-out post by turning the nut on the post clockwise with the nut driver, and set the side of the scraper against the post as shown in Figure M17.
5. Slowly turn the nut on the post counterclockwise until the gauge reads 0mm. (Figure M6)
6. Confirm there is no tape curling at P4 post during reverse mode by using the check light. If tape curling occurs, back to step 8.

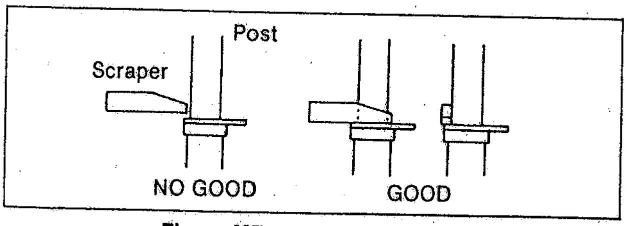


Figure M7 Post Adjustment

3-2-4. CONFIRMATION OF THE A/C HEAD TILT

* Note:
This procedure should be performed after replacing the A/C head and pressure roller, and adjusting the height of the tape guide post (P4).
(Refer to "COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS".)

* Tools and Eqipment Required:
Hex. Wrench Set.........................VFK0326
Nut Driver (purchase locally)

1. Play back the begnning portion of NV-T160 blank cassette tape and confirm that the tape runs between lower and upper limiters of the P4 post. If there is waving or frilling in the lower edge or top edge of the tape, correct the tilt of the A/C head by turning the Hex screw located behind the A/C head. (Figure M8)

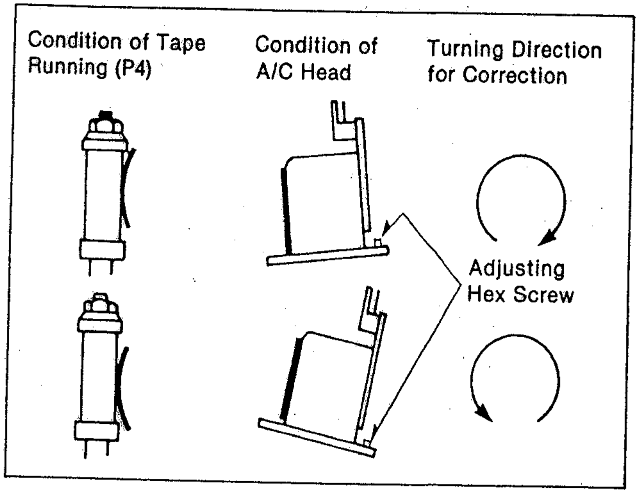

Condition of Tape Running (P4)
Condition of A/C Head
Turning Direction for Correction
Adjusting Hex Screw

Figure M8

2. If the tape curling cannot be acomplished by adjusting the A/C head tilt, then readjustment of the height of the tape guide post (P4) may be needed.

* Notes:

1. The tape guide post (P4) has been precisely adjusted at the factory. Therefore, normally the tape guide post (P4) readjustment is not required to eliminate the tape curling.
2. After adjusting the A/C head tilt, the A/C head height adjustment is required.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY)

* Note:
Before playing back the alignment tape, play back a normal cassette tape and confirm correct transport.
(Refer to "CONFIRMATION OF THE TAPE TRANSPRT".)

* Tools and Equipment Required:
Post Adjustment Screwdriver..............VFK0329
Alignment Tape......................VFM8080HMFPH

1. Connect the scope to the output of the Head Amp (TP3001) on the Main C.B.A. and TP2001 on the same C.B.A. to EX +- Trigger of the scope.
2. Play back the monoscope portion of the alignment tape VFM8080HMFPH.
3. Turn the Tracking Control VR and adjust for maximum RF envelope.
4. If the RF envelope appears like example "A" or "B" in Figure M9, then adjustment of the tape guide post (P2: Entrance) is necessary.
5. Adjust the tape guide post (P2) with the post adjustment screwdriver so that the RF envelope waveform at the entrance portion becomes flat as shown "C" in Figure M9. (See Figure M12 also)

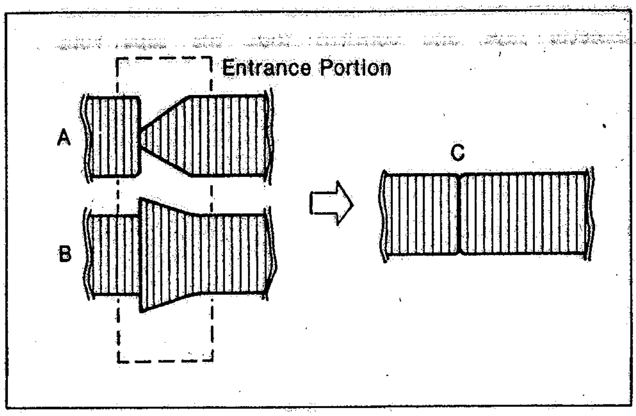


Figure M9

6. If the RF envelope appears like example "D" or "E" in Figure M10, then adjustment of the tape guide post (P3: Exit) is necessary.
7. Adjust the tape guide post (P3) in the same manner as the P2 post so that the exit portion becomes flat as shown in "F" in Figure M10.

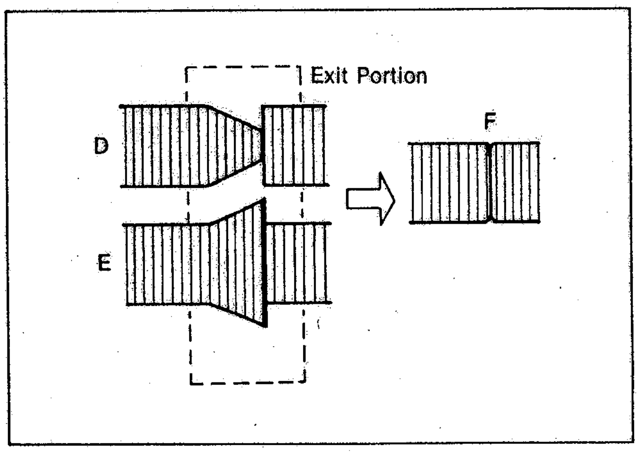


Figure M10

8. Turn the Tracking VR from end to end. The variation of RF envelope should be nearly parallel as shown in Figure M11.
9. Turn the Tracking VR and adjust for maximum RF envelope. If the RF envelope does not meet these specs, V1/V 0.7, V2/V 0.8, then repeat stsps 1–9 of item 3-2-5. again. (Figure M13)

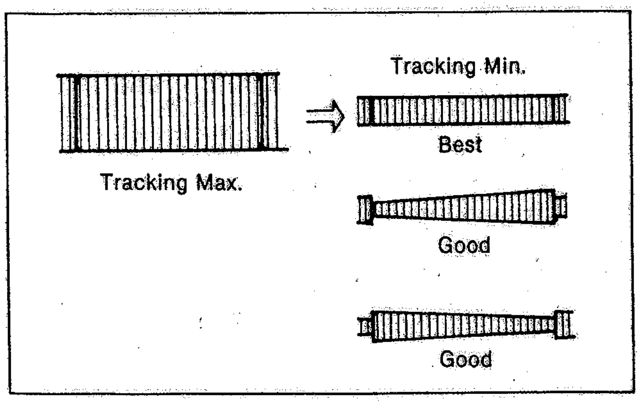


Figure M11

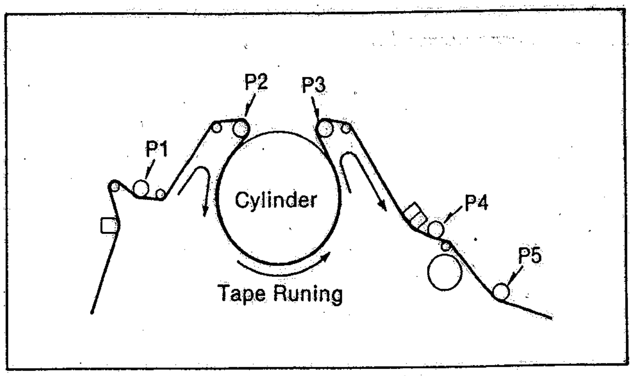


Figure M12 Loading of Posts

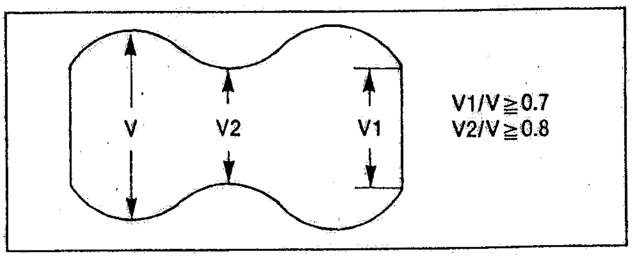


Figure M13 Spec. of Envelope Figure

10. Turn the Tracking VR from end to end again and then back to the detent (Fix) position. At the detent position, the RF envelope waveform should be at maximum. If it is not at maximum then "ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION". is necessary. (Refer to "FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION".)

3-2-6. COARSE ADJUSTMENT OF THE A/C HEAD HEIGHT

* Note:
This procedure should be performed only when the A/C Head is replaced.

* Tools and Equipment Required:
Check Light......................VFK0343
Nut Driver (Purchase locally)

(1) Looking at the lower edge of the control head within the tape running, ensure that lower edge of the tape runs along 0.25mm far from lower edge of the control head. (litte bit up position from lower edge of control head.) If it doesn't, slightly turn the nut (A) in either direction to correct clockwise to lower the head and counterclockwise to raise it.

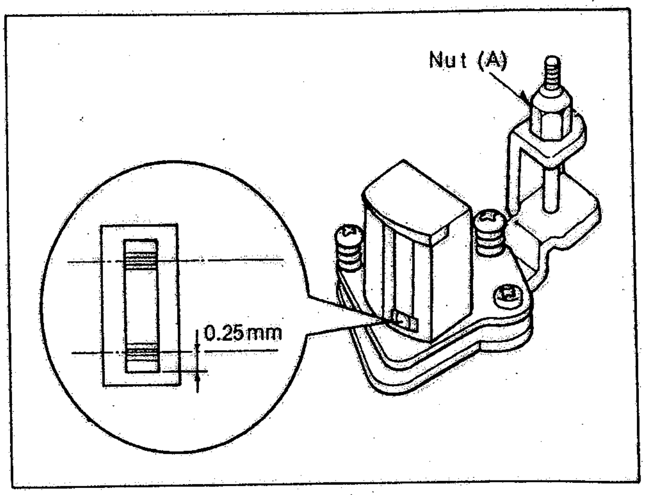


Figure M14

3–2–7. ADJUSTMENT OF THE A/C HEAD HEIGHT AND AZIMUTH

* Note:
This procedure should be performed only when the A/C Head is replaced and posts hight are readjusted.

* Tools and Equipment Required:
Nut Driver (Purchase locally)
Alignment Tape.................VFM8080HMFPH

1. Connect the scope to the audio output. (TP4001)
2. Play back the 2nd portion (Normal Audio 6kHz) of the alignment tape, VFM8080HMFPH.
3. Adjust the screw (B) so that the audio output level at TP4001 becomes maximum. (Figure M15)

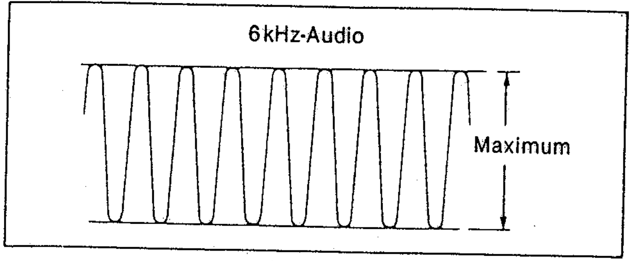


Figure M15

4. Then adjust the nut (A) so that the audio output level (at TP4001) maximum.

3–2–8. COARSE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION

* Note:
This procedure should be performed only when the A/C head is replaced, and after performing the tape interchangeability adjustment.

* Tools and Equipment Required:
H. Position Adj. Fixture.................VFK0328
Alignment Tape......................VFM8080HMFPH

1. Set the tracking Control VR to the center detent (fixed) position.
2. Connect the scope CH1 to TP3001 on the Main C.B.A., and CH2 to TP4001 on the Audio C.B.A.
3. Play back 4th position (Monoscope and Normal Audio 3kHz) of the alignment tape VFM8080HMFPH.
4. Adjust A/C head horizontal position screw so that the phase of Audio drop out and RF envelope drop out becomes the same. (Figures M16 and M17)

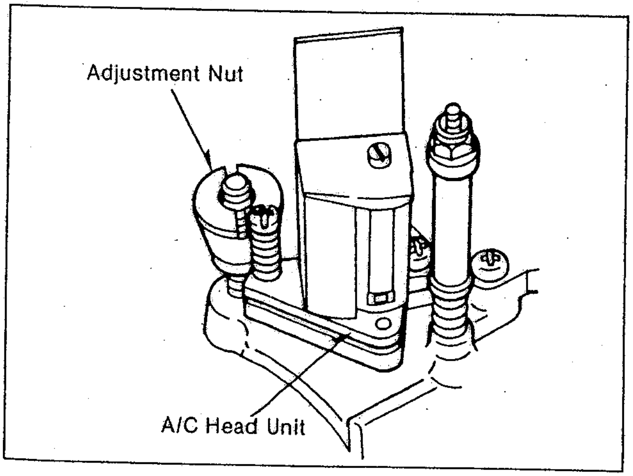


Figure M16

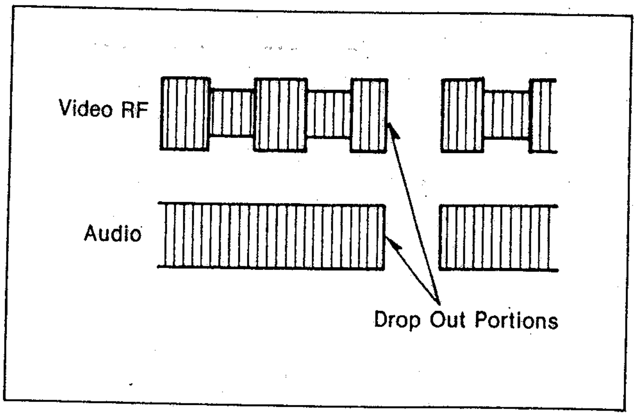


Figure M17

3–2–9. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X–VALUE)

* Note:
When the A/C head is replaced, the coarse adjustment of the A/C head horizontal position is required before performing this fine adjustment.

* Tools and Equipment Required:
H. Position Adj. Fixture.................VFK0328
Alignment Tape......................VFM8080HMFPH

1. Set the Tracking Control VR to the center detent (fixed) position.
2. Connect the scope CH1 to TP3001 on the Main C.B.A., and TP4001 on the Audio C.B.A. to Ext–trigger the scope.
3. Play back 2nd position (Monoscope) of the alignment tape, VFM8080HMFPH.
4. Adjust the adjust screw so that the RF envelope output level becomes maximum at the detent position.
(Figure M16)
5. Turn the Tracking VR from end to end and then back to the detent position.
Confirm that the RF envelope output level is maximized at the detent position. (Figure M11)

4. OTHER ADJUSTMENT PROCEDURES

4-1. CONFIRMATION OF BRAKE TORQUE

* Equipment Required:
Dial Torque Gauge................VFK0133
Adaptor for Gauge................VFK0134
* Specification:————see spec table (figure M19)

(1) Remove the cassette compartment by unscrewing 4 screws.
(2) Attach the adaptor to the torque gauge and place the unit in STOP mode.
(3) Place the torque on the reel table. The weight of gauge should not rest on the reel table.

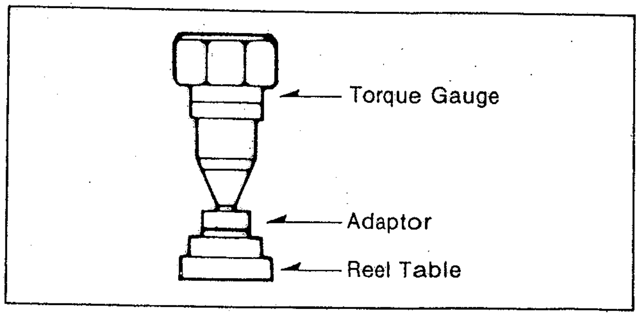
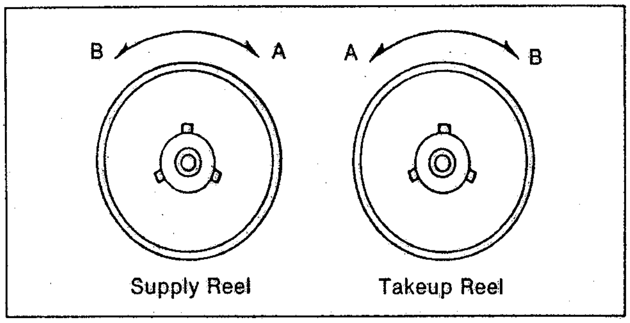


Figure M18

(4) Turn torque gauge in either direction indicated in the Fig. M2, and read the gauge when the brake begins slipping.

Note:
If proper brake torque can not be optained, check the both take-up and supply clutch gear.


B
A
A
B
Supply Reel
Takeup Reel

	A	B
Takeup	28+−8g−cm	28+−8g−cm
Supply	28+−8g−cm	28+−8g−cm

Figure M19

4-2. TENSION POST POSITION ADJUSTMENT

* Specification :−−−−−−−−−2.4mm∼2.9mm

(1) Remove the Cassette Up unit by unscrewing 4 screws. (Refer to the disassembly procedures titled in Removal of the Cassette Up Unit).
Place the unit in Play mode by rotating Drive Gear (A) in clockwise shown below.

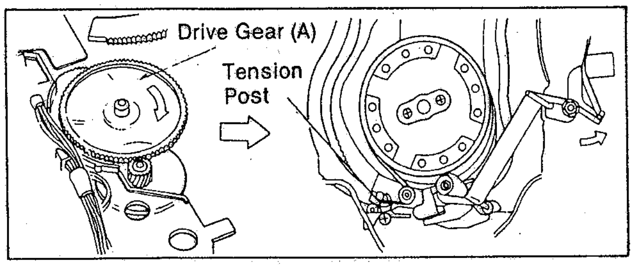

Drive Gear (A)
Tension Post

Figure M20

Note:
In this case, make sure that the power is not applied.

(2) Loosen the screw (A) a little bit and adjust the Tension Post adjustment plate so that the "Distance (A)" shown below becomes just meet in the specification (2.4m∼2.9mm).

(3) Tighten the screw (A) to fix it.

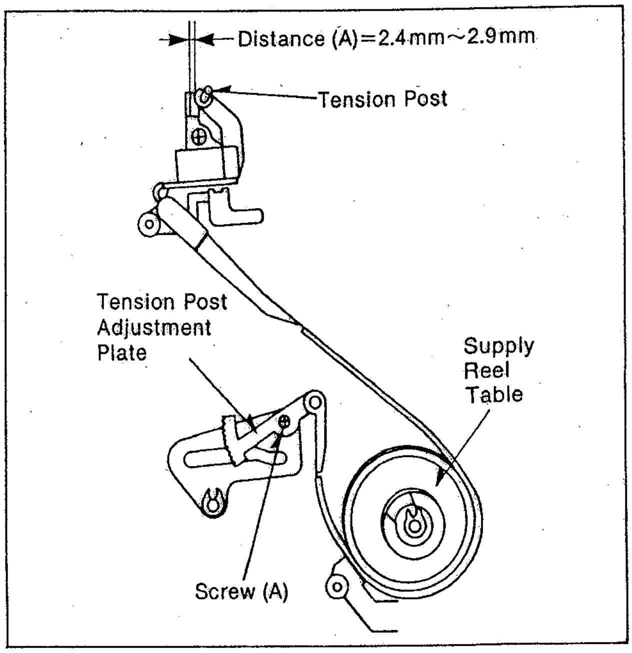

Distance (A)=2.4mm∼2.9mm
Tension Post
Tension Post Adjustment Plate
Supply Reel Table
Screw (A)

Figure M21

4-3. BACK TENSION ADJUSTMENT

* Equipment Required:
Back Tension Meter......................VFK0132
VHS Cassette Tape (120min.)
* Specificcation:−−−−−−−−−−−−−−−−−−−−−−−−19∼23g

1. Playback the cassette tape from the beginning and wait until the tape movement get the stabilization. (for approx. 10∼20 seconds)
2. Insert the Back Tension Meter into the path of a tape, and measure the back tension to be within specification as shown in Figure M22.

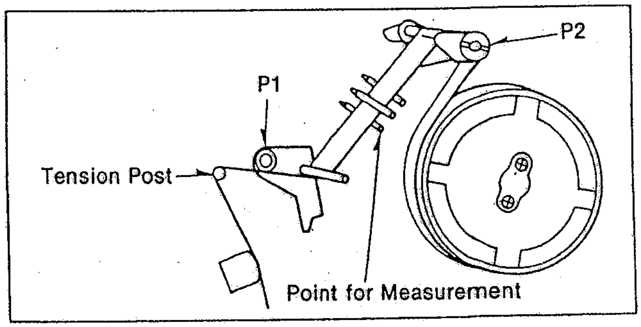

P2
P1
Tension Post
Point for Measurement

Figure M22 Measurement of Back Tension

Note:
1. While measuring, make sure that the three probes of the meter are all in good contact with the tape.
2. As the tension meter is very sensitive, we recommend taking 3 separate readings.
3. If it is out of specification, change the spring notch as shown in Figure M23

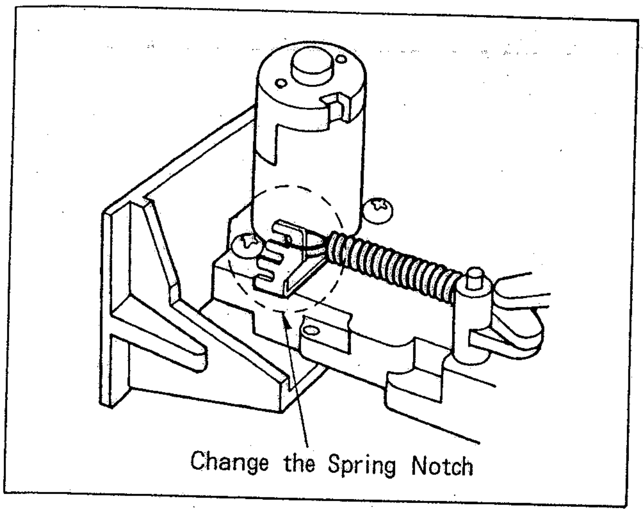


Figure M23

4-4. REEL TABLES HEIGHT ADJUSTMENT

* Equipment Required:
Post Adjustment Plate............VFK0191
Reel Table Height Gauge..........VFK0190
* Specification------------0~-0.15mm

Note:
Cut-out on Post Adjustment Plate is reference of reel table height and their height is measured based on this reference.

1. Place the post adjustment plate on the reels, and put the Gauge on the plate. Set the gauge to zero "0" with the foot scraper of the gauge touching the cut-out portion of the plate.

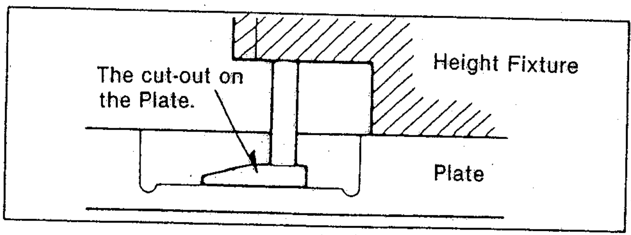


Figure M24

2. Then measure the height of reel table and confirm the difference just performed in former step as shown below. Do the same way for the other reel table.

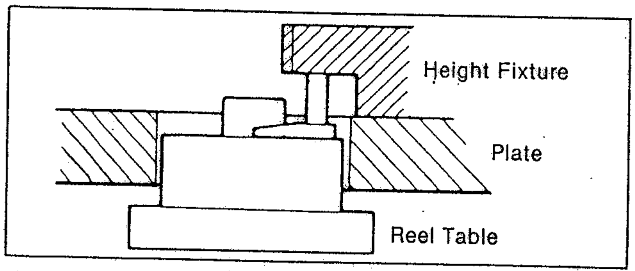


Figure M25

3. If a height difference in readings between the cut-out portion of plate and reel tables is not 0~-0.15mm (higher or lower), adjust the height of the reel to obtain specified height.
4. For adjustment add or reduce a washer.

4-5. ADJUSTMENT OF FG HEAD GAP

* Specification:------------0.17~0.18mm
(1). Slightly loosen the 2 screws.
(2). Put the paper which is used for cover page of this volume into the gap between F.G.Head and Capstan rotor. (The thickness of the cover page is approx 0.17mm)
(3). After adjustment, tighten 2 screws.

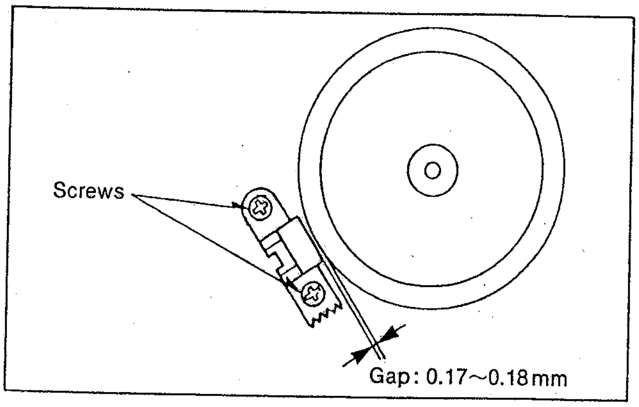


Figure M26

Note:
Do not touch the surface of rotor and keep any magnetizable material away.

4-6. ASSEMBLY ADJUSTMENT PROCEDURES OF MECHANISM

The mechanism of this model is mostly engaged to the System Control Circuit, through the mode select switch.
Therefore the relation between the mode select switch and the cam gear decides all further mechanical movement of the mechanical parts such as levers, gears, rollers and so on.
If these parts are fixed in properly, the unit will be unloaded or compulsorily stopped.
And it will result being damaged at any mechanical or electrical parts.

4-6-1. ASSEMBLY PROCEDURES OF LOADING RINGS AND LOADING GEARS

(1). Install a Loading-Ring T (1) unit and a Loading Gear (B) so that both triangle marks meet each other as shown below.

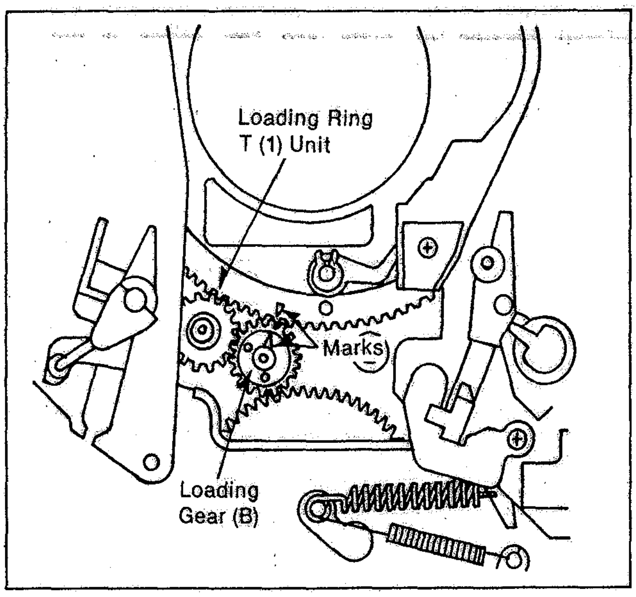

Loading Ring
T (1) Unit
Marks
Loading
Gear (B)

Figure M27

(2). Install a Loading Gear (A) and next fix a Loading Ring S (1) Unit so that the holes of Loading-Ring S(1) Unit and T(1) Unit meet each other as shown below.

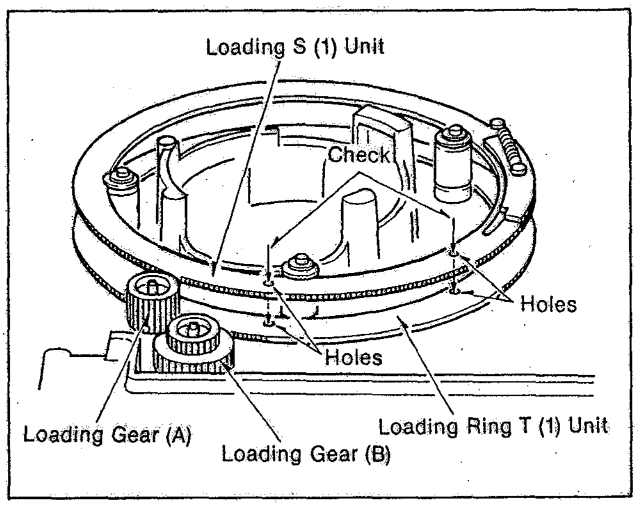

Loading S (1) Unit
Check
Holes
Holes
Loading Gear (A)
Loading Gear (B)
Loading Ring T (1) Unit

Figure M28

Note:
Pay attention that the washers are remaining under the loading gears or any other parts.

4-6-2. ASSEMBLY PROCEDURES OF TAKE-UP LOADING GUIDE AND TAKE-UP LOADING POSTS UNIT

(1). Install Loading Guide T Unit and Take-up Post Stopper.
In that time, the small projection of a Loading Link T Unit must be inserted into a gap of Loading Guide T Unit.

(2). Fix a Take-up side Loading Post Unit holding the small projection of the Loading Link T Unit and install a T Shaft Holder Unit.

4-6-3. ASSEMBLY PROCEDURES OF SUPPLY LOADING GUIDES AND SUPPLY LOADING POST UNIT

(1). Install 2 Supply Loading Guides screwing 4 screws.

(2). Slide a Supply Loading Post Unit into a gap between the Loading Guide S1 and S2 hooking a Connection Rod to a Connection Tie Unit as shown below.

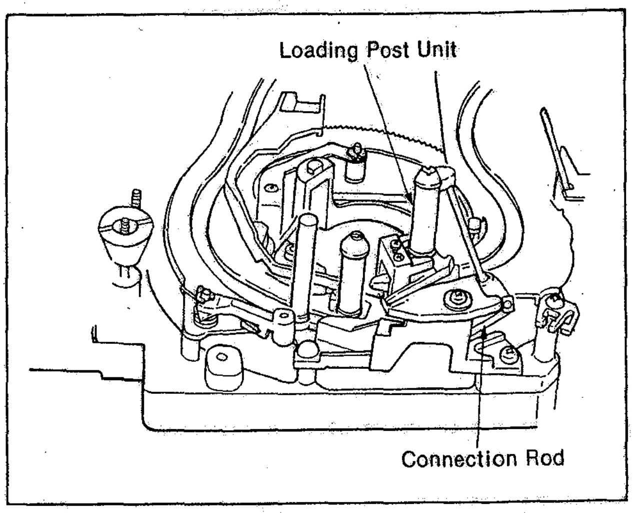

Loading Post Unit
Connection Rod

Figure M29

(3). Set the Supply Loading Post Unit into unloading position by turning a intermediate pully gear as shown below.

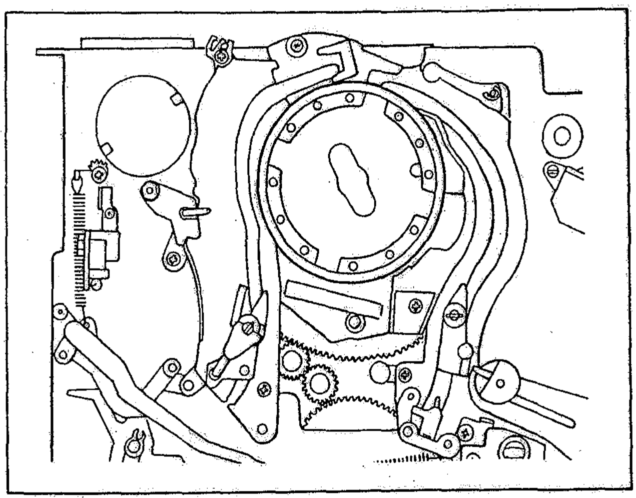


Figure M30

(4). Install a V Stopper Base and a Supply Post Stopper.

4-6-4. ASSEMBLY PROCEDURES OF MAIN ROD.

(1). Place a Main Rod inserting 3 Thrust Washers and then insert 3 washers.
After that, fix them using 2 retaining rings as shown below.

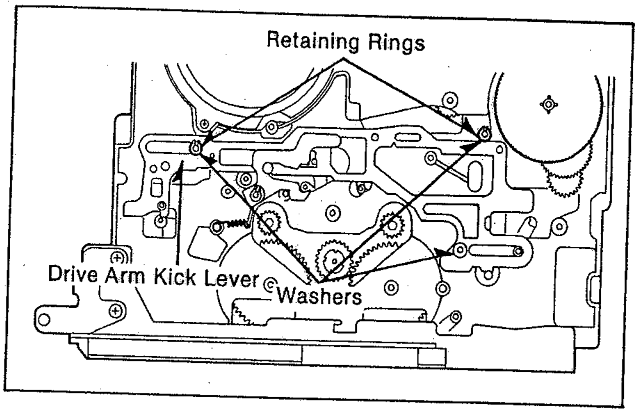


Figure M31

(2). Install a Drive Arm Kick Lever hooking a Drive Arm kick Lever Spring and fix it using ring.

4-6-5. ASSEMBLY PROCEDURES OF CAM GEAR AND SECTOR

(1). Make sure that the hole on a Main Rod just should coincide with the hole on chassis as shown below and install a Cam Gear should coincide with he hole between a Cam Gear and the chassis. Then install a retaining ring.

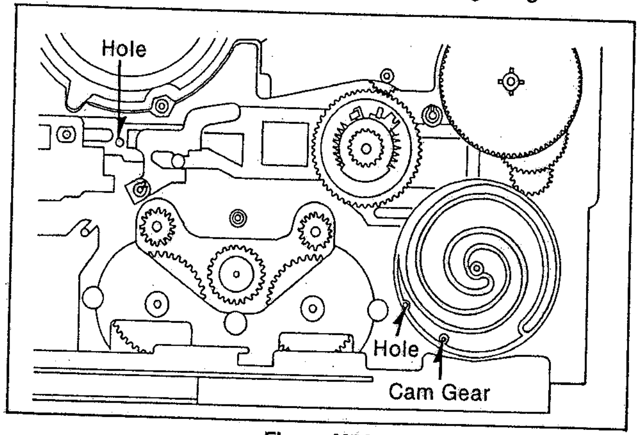


Figure M32

(2). Install a Loading Gear (C) keeping the relation as shown below.

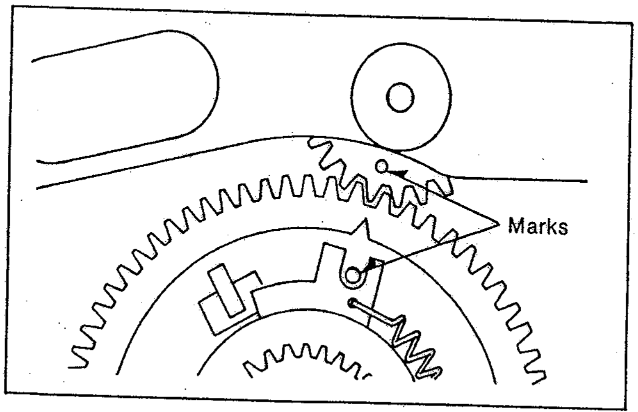


Figure M33

(3). Install a Sector Gear as shown below.

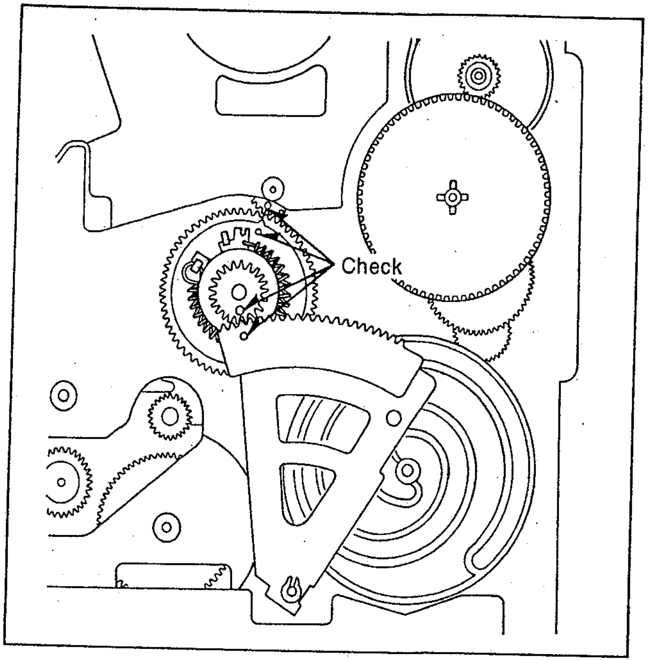


Figure M34

(4). Fix a SG Limiter by 2 retaining rings.

4-6-6. ASSEMBLY PROCEDURES OF MODE SWITCH

(1). Perform this procedures after confirming the complete setting of mechanical parts.
First of all, confirm that the hole on a Main Rod is meeting with a hole on a chassis.

(2). Move the moving contact of a Mode Select Switch into Stop position as shown below.

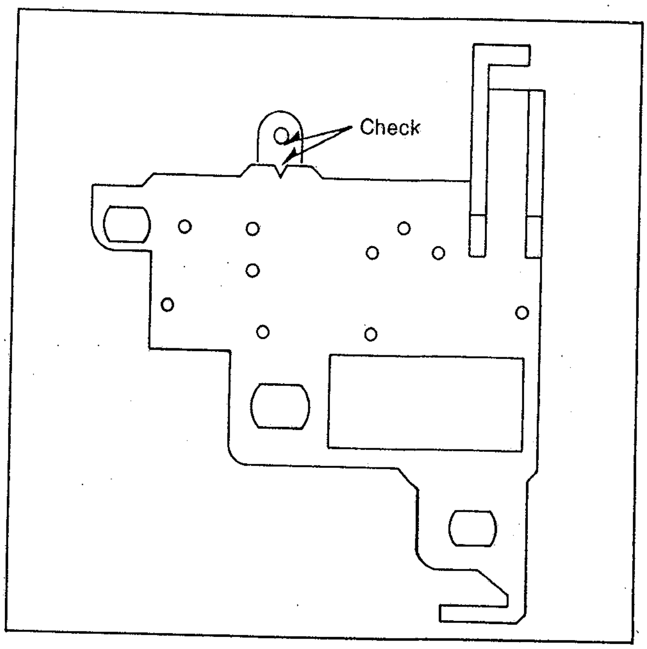


Figure M35

(3). Install the Mode Select Switch keeping these relation written in item (1) and (2) by screwing 2 screw.

ELECTRICAL ADJUSTMENT PROCEDURES

1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

1-1. TEST EQUIPMENT & TOOLS

The following equipment is required for adjustment of the CAMERA section of VHS Movie.

1. Oscilloscope
   Dual Trace, 25MHz, 2mV/DIV,
   10:1 Probe
   1:1 Probe
2. Digital Volt Meter or VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
   140 footcandles (1400lux), on the chart surface 3200 degrees K.
9. Reflection Chart
   - *Logarithmic Gray Scale Chart
     (Part No.: YWV2310RB99)
   - *Colour Chip Chart
     (Part No.: YWV2100RB98)
   - *Ball Chart
     (Part No.: YWV2100RB03)
   - *Hunting Chart
     (Included in this Service Manual)
   - *White Chart (Card)
     (The white paper is available as a white chart)
   - *J Chart
     (Part No.: YWV2100RB3)
   - *B/W Chart
     (Included in this Service Manual)
   - *Gray-White Chart
     (Included in this Service Manual)
10. Plastic Tip Driver
11. Camera Unit Holder
    (Part No.: VFK0382)
12. Camera Holder Arm
    (Part No.: VFK0431)

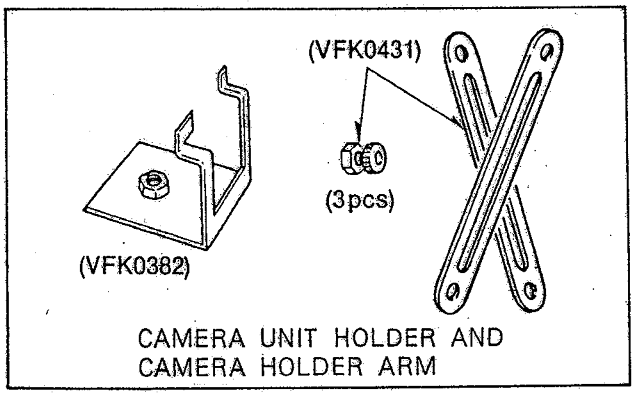

(VFK0431)
(3pcs)
(VFK0382)
CAMERA UNIT HOLDER AND
CAMERA HOLDER ARM

Figure C1

13. Color temperature conversion filter
    - *C12 Filter
      (Part No.: VFK0374)
    - *C2 Filter
      (Part No.: VFK0375)
14. Camera Extension Cables
    (Part No.: VFKS0060, VFK0380, VFK0430)

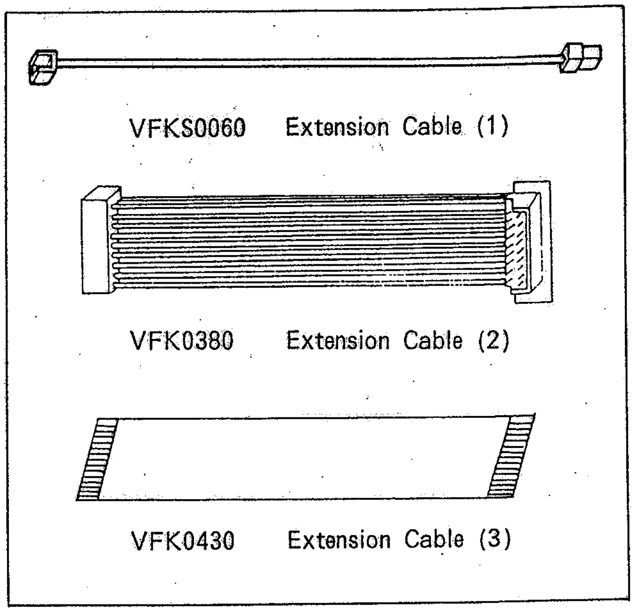

VFKS0060 Extension Cable (1)
VFK0380 Extension Cable (2)
VFK0430 Extension Cable (3)

Figure C2

PREPARATION

1) Remove the Side Case (L) and Side Case (R) from the Unit.
   (Refer to the Disassembly Section.)
2) Mount the Camera Unit on the tripod using the Camera Unit Holder (VFK0382) and Camera Holder Arm (VFK0431).
3) Connect the Camera Unit, Video Recorder Unit, AC Adaptor, Camera Operation Unit and Colour Monitor TV as shown in Figure C3.
4) Remove the Flexible Cable between FP301 and P3003
   And re-connect the Camera Extension Cable (3) (VFK0430) to these connectors.

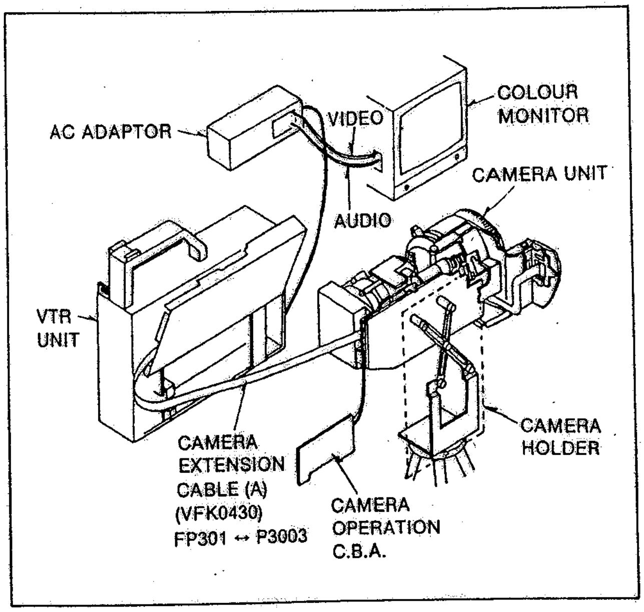

AC ADAPTOR
VIDEO
COLOUR
MONITOR
CAMERA UNIT
AUDIO
VTR
UNIT
CAMERA
HOLDER
CAMERA
EXTENSION
CABLE (A)
(VFK0430)
FP301 ↔ P3003
CAMERA
OPERATION
C.B.A.

Figure C3

Note:

1. Set the White Balance Switch to INDOOR position during adjustment procedures.
2. Service work for the Camera Unit must be performed in a dust-free location to maintain lens cleanliness.
3. To achieve the best adjustment results, warm up the camera before adjusting.
4. FOR TRIGGER (Refer to Figure C4-1)
   To trigger the scope, solder jumper wires to the following pins that are used as test points. (H-Rate - Pin 12 of B302 and V-Rate - Pin 13 of B302). Remove the jumper wires after completing the adjustment Procedure(s).
5. If you use the reflection chart, ensure the colour temperature of the light source used is 3200 degrees K.

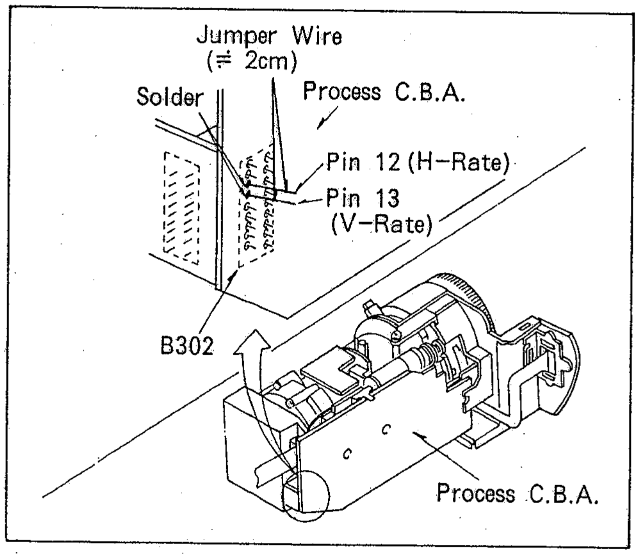

Jumper Wire
(≒ 2cm)
Solder
Process C.B.A.
Pin 12 (H-Rate)
Pin 13
(V-Rate)
B302
Process C.B.A.

Figure C4-1

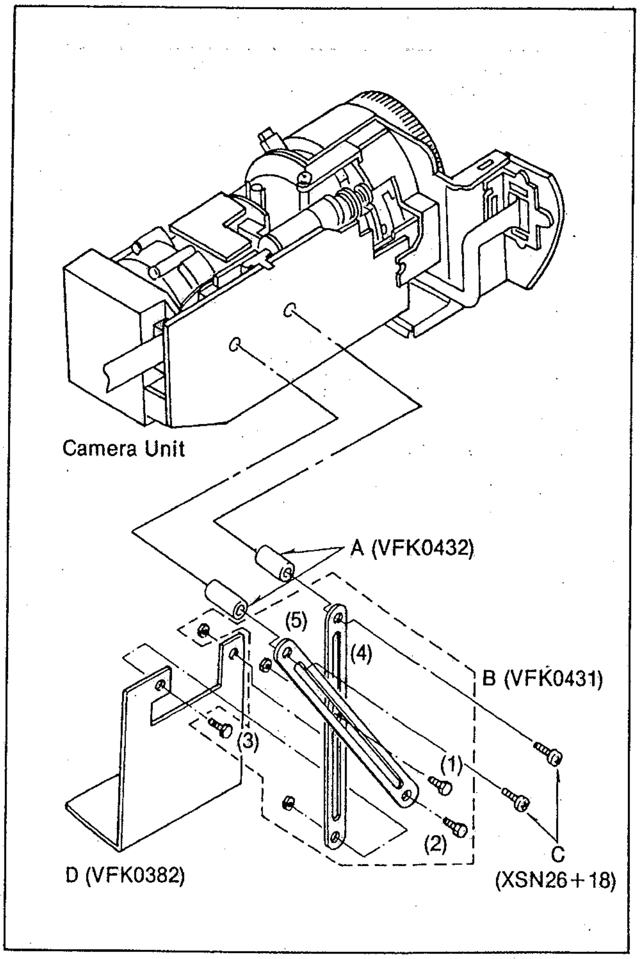

Camera Unit
A (VFK0432)
(5)
(4)
B (VFK0431)
(3)
(1)
(2)
C
(XSN26+18)
D (VFK0382)

Figure C4-2

6. HOW TO USE CAMERA HOLDER ARM (VFK0431)
   This Camera Holder Arm which is adjustable the span must be mounted to VFK0382 and it can be used with VFK0432 for camera adjustment or checking.

(A) --- VFK0432 Holder Spacer (2pcs.)
(B) --- VFK0431 Camera Holder Arm
(C) --- XSN26+18 Screw (2pcs.)
(D) --- VFK0382 Camera Holder

(1) Fix the Holder Arm (4) and (5) temporarily by screw (1) as shown in Figure C4-2.
(2) Mount the Camera Holder Arm (B) to the Camera Holder (D) by screws (2) and (3) as shown in Figure C4-3.
(3) Tightn the screws (C) with the Holder Spacers (A) as shown in Figure C4-2.

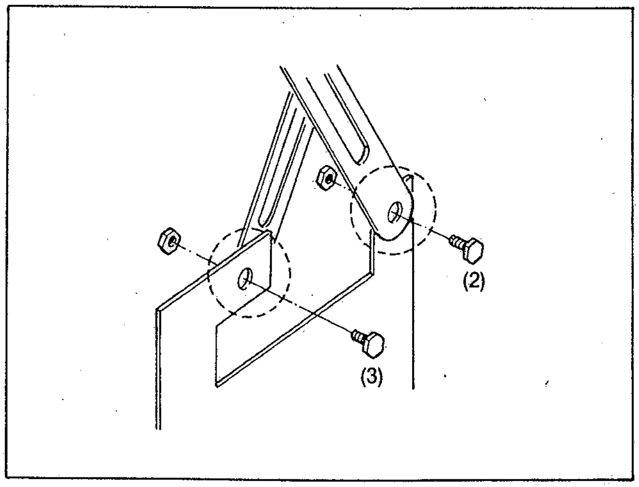


Figure C4-3

7. When servicing the Camera Section, connection of 18 pin Extension Cable (2) (VFK0380) and 2 pin Extension Cable (1) (VFKS0060) are necessary as shown in Figure C4-4.

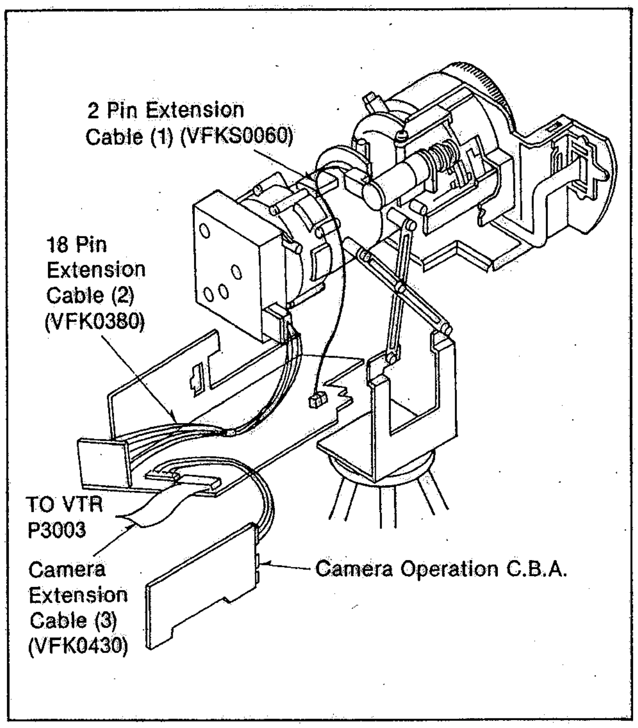
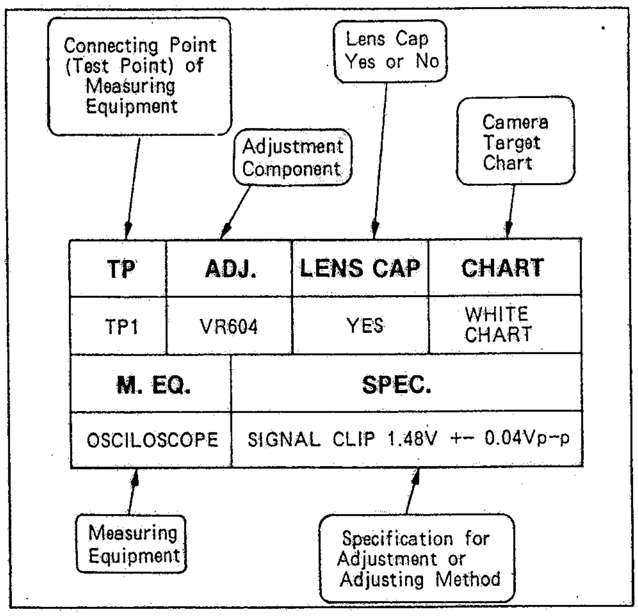

2 Pin Extension Cable (1) (VFKS0060)
18 Pin Extension Cable (2) (VFK0380)
TO VTR P3003
Camera Extension Cable (3) (VFK0430)
Camera Operation C.B.A.

Figure C4-4

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Lens Cap Yes or No
Adjustment Component
Camera Target Chart
Measuring Equipment
Specification for Adjustment or Adjusting Method

TP	ADJ.	LENS CAP	CHART
TP1	VR604	YES	WHITE CHART

M. EQ.	SPEC.
OSCILOSCOPE	SIGNAL CLIP 1.48V +- 0.04Vp-p

Figure C5-1

1-2. CAMERA ADJUSTMENT PROCEDURES

CCD DRIVE SECTION

1. BACK FOCUS ADJUSTMENT
2. PLL FREQUENCY ADJUSTMENT
3. V-SUB ADJUSTMENT
4. CCD OUTPUT ADJUSTMENT

PROCESS SECTION

5. PEDESTAL LEVEL ADJUSTMENT
6. ALC ADJUSTMENT
7. AGC ADJUSTMENT
8. YH LEVEL ADJUSTMENT
9. WHITE BALANCE ADJUSTMENT
10. CARRIER BALANCE AND BLACK PEDESTAL ADJUSTMENT
11. AUTO WHITE BALANCE MODE ADJUSTMENT (OUTDOOR)
12. COLOR PHASE AND R-Y/B-Y GAIN ADJUSTMENT
13. HIGH INTENSITY SUPPRESS ADJUSTMENT
14. LOW LIGHT INDICATION ADJUSTMENT
15. AWT MODE ADJUSTMENT

15-1. AWT MODE (OFFSET) ADJUSTMENT

15-2. AWT MODE (GAIN) ADJUSTMENT

15-3. HIGH COLOUR TEMPERATURE ADJUSTMENT

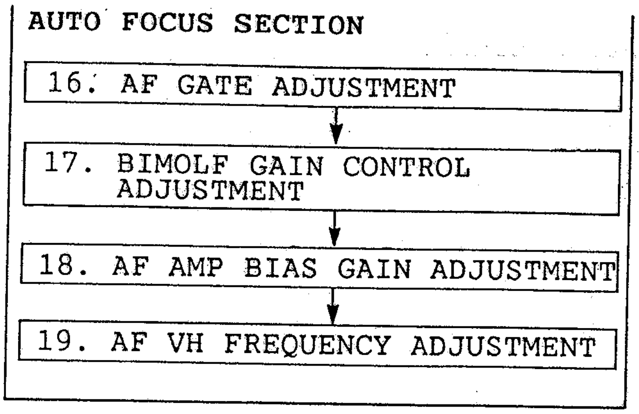

AUTO FOCUS SECTION
16. AF GATE ADJUSTMENT
17. BIMOLF GAIN CONTROL ADJUSTMENT
18. AF AMP BIAS GAIN ADJUSTMENT
19. AF VH FREQUENCY ADJUSTMENT

Figure C5-2

CCD DRIVE SECTION

1. BACK FOCUS ADJUSTMENT

(1) Aim the Camera at the Hunting Chart in 3m distance and zoom all the way in (Fully tele position).
(2) Focus the lens on the object.
(3) Adjust the relay lens adjustment point as shown in Figure C6.

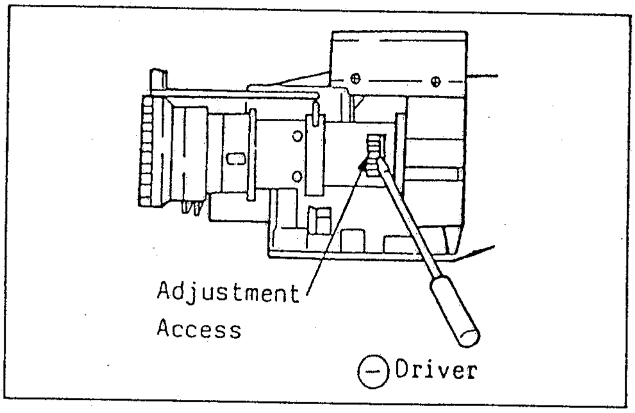

Adjustment
Access
⊖Driver

Figure C6

(4) Zoom all the way back and adjust the back focus pitch so that the sharpest focus is obtained.
(5) Repeat the procedure as follows, zoom in, focus, zoom out and adjust until the best focus is obtained over the entire Zoom range.

2. PLL FREQUENCY ADJUSTMENT

(1) Remove the Sensor Shield Case by removing its 4 Screws.

TP	ADJ.	LENS CAP	CHART
PIN 10 OF B201	C206		
M. EQ.		**SPEC.**	
FREQUENCY COUNTER		9.534965MHz +– 10Hz	

Note:
B201, C206 : CCD Drive C.B.A.

3. V-SUB ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR201	NO	HALOGEN LAMP
M. EQ.		**SPEC.**	
MONITOR TV		NO BLOOMING	

(1) Zoom allthe way in (Fully tele position) and aim the camera at the Halogen Lamp (3200 degrees K) as shown in Figure C7–1.

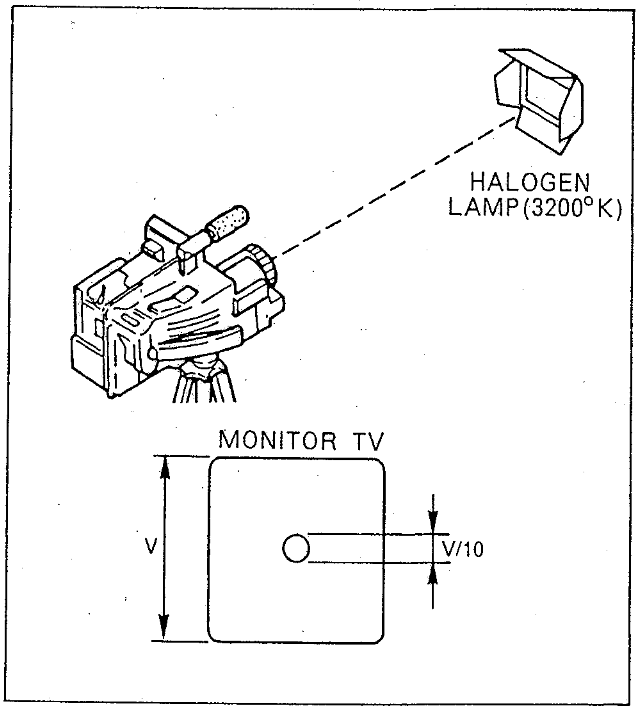

HALOGEN
LAMP(3200°K)
MONITOR TV
V
V/10

Figure C7-1

(2) Set the High Speed Shutter SW to "ON" portion.
(3) Connect a jumper wire between TP10 and TP11 to fully open the iris.
(4) Adjust the Blooming Control (VR201) so that the monitored picture does not contain the Blooming.
(5) High Speed Shutter "ON" and "OFF" both mode, confirm that the monitored picture does not contain the Blooming even if the camera moves as shown in Figure C7–2.

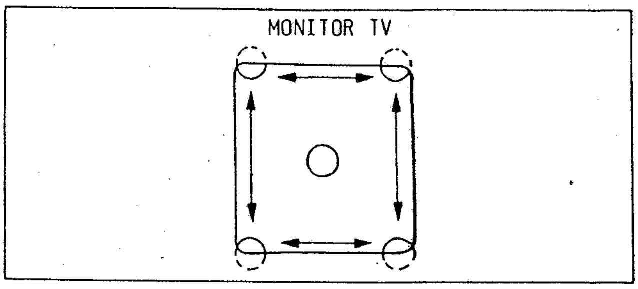


Figure C7-2

4. CCD OUTPUT ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP201	VR202	NO	J CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		220mV +- 10mV	

Note1:
TP201, VR202 : CCD Drive C.B.A.

Note2:
Prior to the above adjustment, adjust the iris control (VR301) so that the level at TP1 is 300+-10mV by observing waveform on the oscilloscope.

(1) Aim the camera at the J chart and focus the lens on the object.
(2) Connect the oscilloscope to TP201.
(3) Adjust VR202 so that the signal level is 220+-10mVp-p as shown in Figure C8.

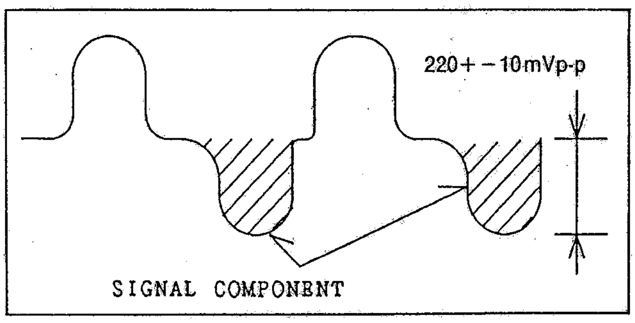


Figure C8

PROCESS SECTION

5. PEDESTAL LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP2	VR305	YES	
M. EQ.		**SPEC.**	
OSCILLOSCOPE		SIGNAL LEVEL EQUALS THE BLANKING (BLNK) LEVEL.	

Note:
TP2, VR305 : Process C.B.A.

(1) Cover the Camera Lens with the Lens Cap.
(2) Connect the scope to TP2 and trigger with Pin 12 of B302 (H-Rate).
(3) Adjust the Pedestal Level Control (VR305) so that the signal level equals the BLK level as shown in Figure C9.

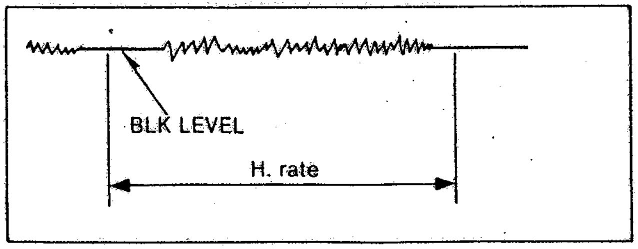


Figure C9

6. ALC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP1	VR301	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		0.30V +- 0.02Vp-p	

Note:
TP1, VR301 : Process C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Connect the scope to TP1 and trigger with Pin 12 of B302 (H-Rate).
(3) Adjust the Camera Unit to obtain 40usec as shown in Figure C10.
(4) Adjust the Auto Iris Control (VR301) so that the signal level is 0.30V +- 0.02Vp-p.

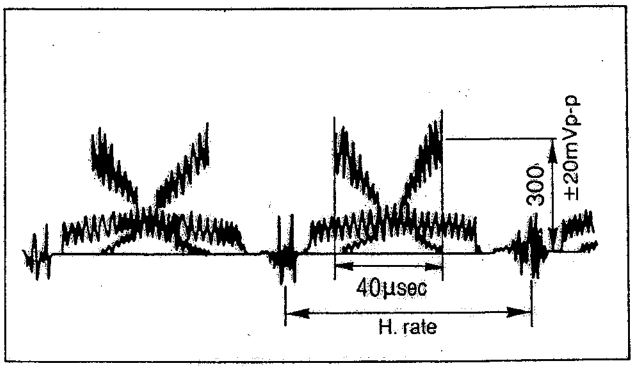


Figure C10

7. AGC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP2	VR304	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		0.30V +- 0.02Vp-p	

Note:
TP2, VR304 : Process C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Connect the scope to TP2 and trigger with Pin 12 of B302 (H-Rate).
(3) Adjust the Camera Unit to obtain 40usec as shown in Figure C11.
(4) Adjust the AGC Control (VR304) so that the signal level is 0.30V +- 0.02Vp-p.

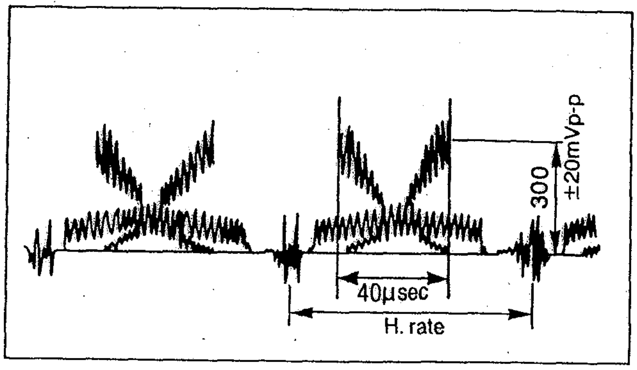


Figure C11

8. YH LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
PIN 7 OF FP 301	VR302	NO	GRAY SCALE CHART
M. EQ.	**SPEC.**		
OSCILLOSCOPE	B/A = 2.5 +– 0.15		

Note:
VR302, FP301 : Process C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Connect the scope to Pin7 of FP301. (Refe to Figure C13)
(3) Adjust the YH Level Control (VR302) so that the signal level "B/A" is 2.5 +– 0.15 as shown in Figure C12.
(4) Disconnect the jumper wire.

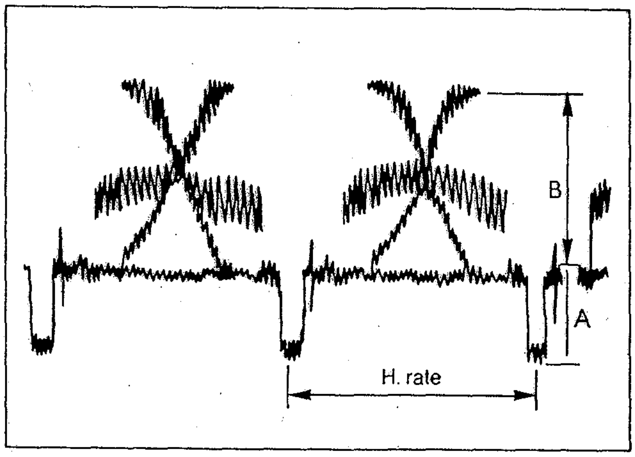


Figure C12

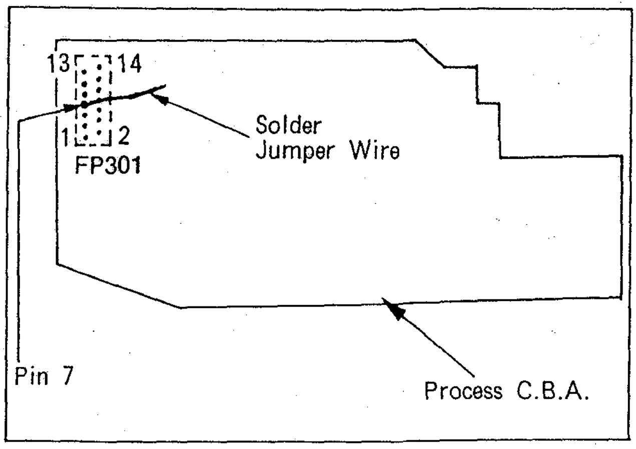


Figure C13

9. INDOOR WHITE BALANCE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR322 VR323	NO	WHITE CHART
M. EQ.	**SPEC.**		
VECTORSCOPE	CENTER OF VECTORSCOPE		
OSCILLOSCOPE	WAVEFORM IS MINIMIZED		

Note:
VR322, VR323 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White Balance Switch to "INDOOR" side.
(2) Aim the camera at the White Chart.
(3) Supply the video signal to the vectorscope.
(4) Adjust the White Balance Controls (VR322 and VR323) so that the colour vectors are collected at the center of scrren on the vectorscope as shown in Figure C14.
(5) Confirm the colour of picture when after adjustment.
If colour is failure, then adjust the above procedures again.

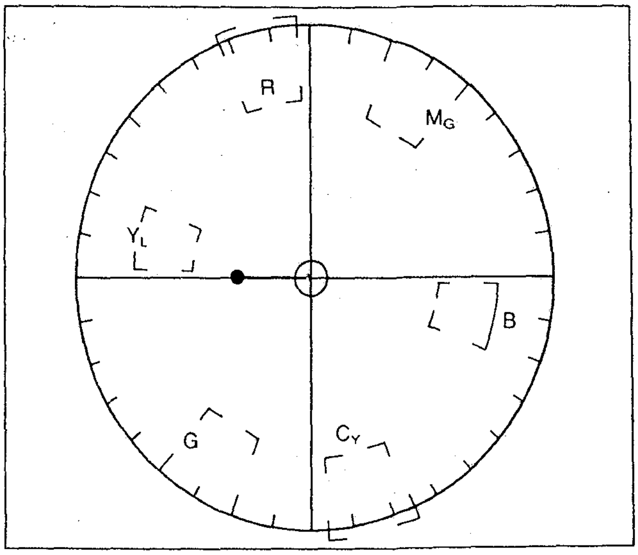


Figure C14

WITH OSCILLOSCOPE
(1) Adjustment condition and procedure are same as using vectorscope
(2) Adjust VR322 and VR323 so that the waveform is minimized.

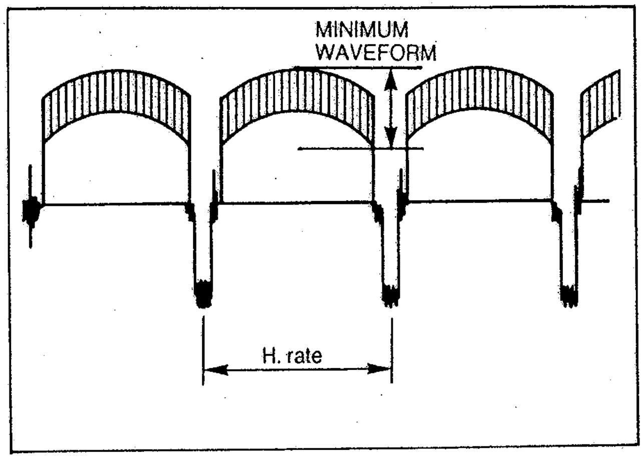


Figure C15

10. CARRIER BALANCE AND BLACK PEDESTAL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR308 VR318 VR319	YES	

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR308, VR319, VR318 : Process C.B.A.

WHTH VECTORSCOPE
(1) Cover the Camera Lens with the Lens Cap.
(2) Adjust the Black Pedestal Control (VR308) so that the colour vectors collect at the centre of screen on the vectorscope.
(3) Connect the jumper wire between TP6 and Pin5 of P401.
(4) Adjust the Carrier Balance Controls (VR318 and VR319) so that the colour vectors collect at the center of of screen on the vectorscope.
(5) Disconnect the jumper wire.

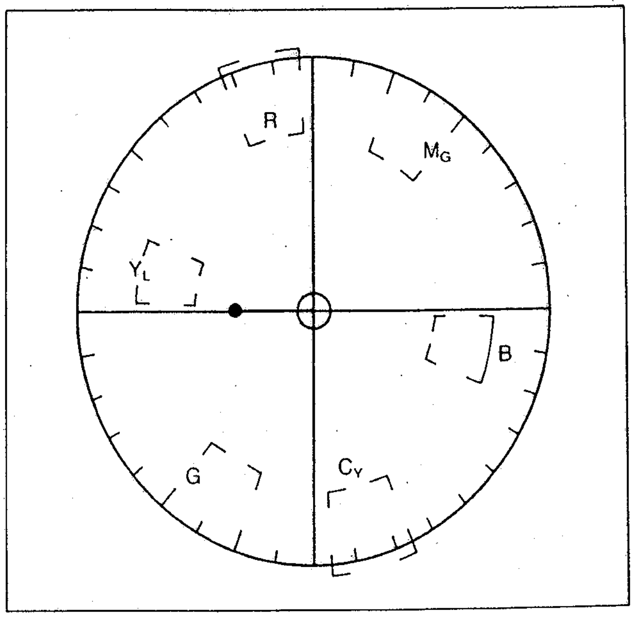


Figure C16

WITH OSCILLOSCOPE
(1) Adjustment condition and procedure are same as using Vectorscope.
(2) Adjust VR318 and VR319 so that the waveform is minimized.

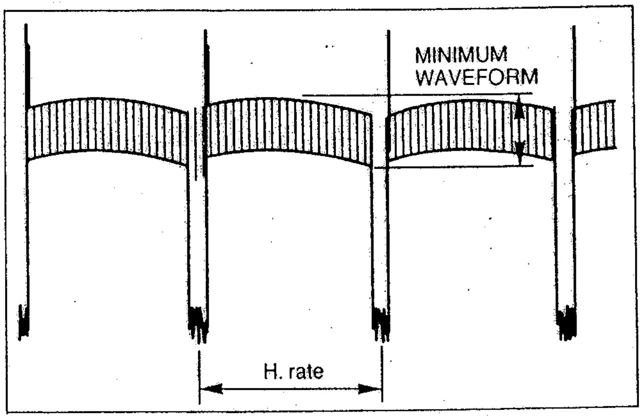


Figure C17

11. AUTO WHITE BALANCE MODE ADJUSTMENT (OUTDOOR)

Note:
1) Perform both sections of this procedure.

11–1. AWB AUTO MODE (OUTDOOR) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR312 VR313	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR312, VR313 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White Balance Switch on the Camera Operation Unit to the "OUTDOOR".
(2) Aim the camera at the White Chart using a 3200 degrees K Halogen lamp.
(3) Supply the video signal to the vectorscope.
(4) Attach the colour temperature conversion filters (VFK0374 and VFK0375) which converts 3200 degrees Kelvin to 5800 degrees Kelvin in front of the lens. (Refer to Note 1 of item 15-3)
(5) If the colour temperature conversion filter is not available, use a day light source. (Refer to Note 2 of item 15-3)
(6) Adjust the White Balance (B-Y) Outdoor Gain and White Balance (R-Y) Outdoor Gain Controls (VR312 and VR313) so that the colour vectors move to the center of screen on the vectorscope. (Refer to Figure C18)
(7) Remove the colour temperature conversion filter with the fixture from the lens.

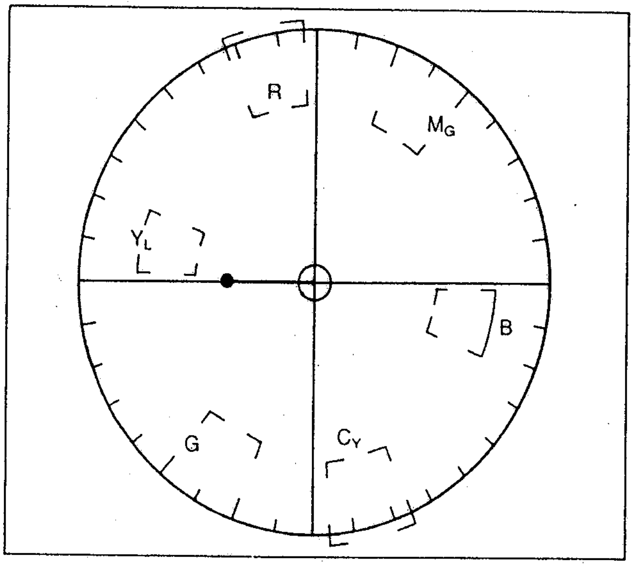


Figure C18

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR312 and VR313 so that the waveform is minimized.

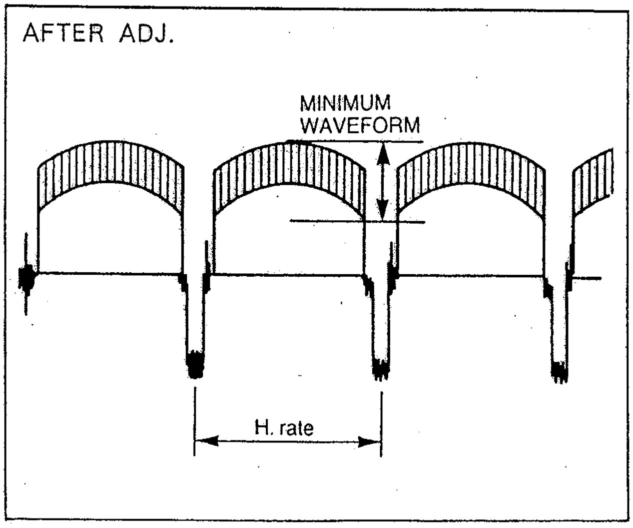


Figure C19

12. COLOR PHASE AND R-Y/B-Y GAIN ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR316, VR317 VR303, VR324	NO	COLOUR CHIP CHART

M. EQ.	SPEC.
VECTORSCOPE	FIGURE C20

Note:
VR316, VR317, VR303, VR324 : Process C.B.A.

(1) Aim the camera at a Colour Cip Chart.
(2) Supply the video signal to the vectorscope.
(3) Adjust the Colour Phase Control (VR303 and VR324), the R-Y Gain Control (VR316) and the B-Y Gain Control (VR317) so that the vector of each colour is as shown in Figure C20.

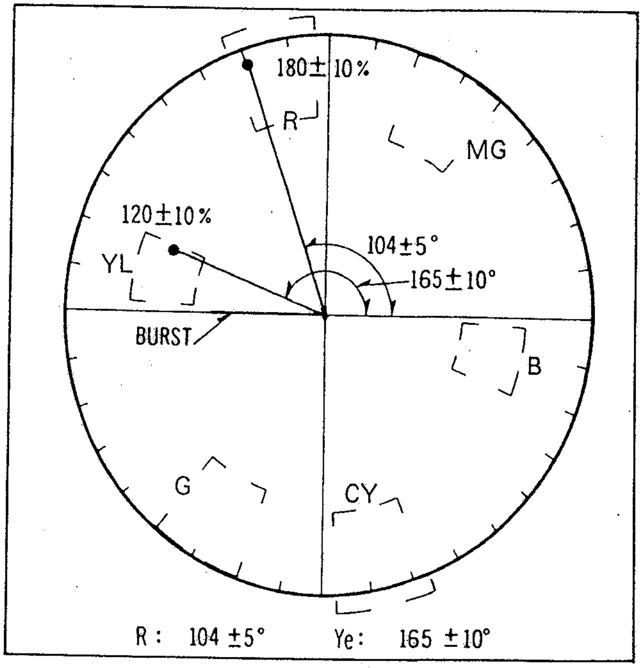


Figure C20

13. HIGH INTENSITY SUPPRESS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR306	NO	GRAY SCALE CHART

M. EQ.	SPEC.
TV MONITOR	NO COLOUR INTERFERENCE

Note:
VR306 : Process C.B.A.

(1) Aim the camera at the gray scale chart and focus the lens object.
(2) Press the back light button and keep as it is.
(3) Adjust VR306 so that the monitored gray scale chart does not have colour interfarence.

14. LOW LIGHT INDICATION ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP12	VR107	NO	WHITE CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		REFER TO FIGURE C21	

Note:
TP12, VR107 : Process C.B.A.

(1) Connect the oscilloscope to TP12 and set it in DC mode.
(2) Shade surface of AWT Sensor with hand and adjust VR107 so that DC level at TP12 is changed from "LOW" to "HIGH"

Note:
For more acurate adjustment;
When the illumination of the surface of AWT Sensor is 6lux,the level must be "LOW".
When the illumination of the surface of AWT Sensor is 3lux,the level must be "HIGH".

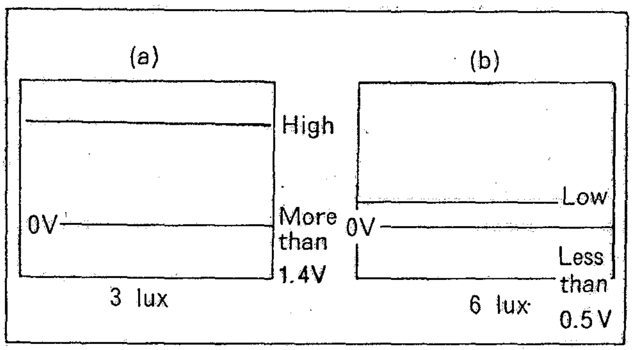


Figure C21

15. AWT MODE ADJUSTMENT

Note:
1) Perform all three sections of this procedure.
2) Set the WHITE BALANCE Switch on the CAMERA OPERATION UNIT to the "AUTO".

15-1. AWT MODE (OFFSET) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR105 VR106	NO	WHITE CHART
M. EQ.		**SPEC.**	
VECTORSCOPE		CENTER OF VECTORSCOPE	
OSCILLOSCOPE		WAVEFORM IS MINIMIZED	

Note:
VR105, VR106 : Process C.B.A.

WITH VECTORSCOPE
(1) Aim the camera at the white chart.
(2) Supply the video signal to the vectorscope.
(3) Rotate VR101 and VR102 fully clockwise as shown in Figure C22.

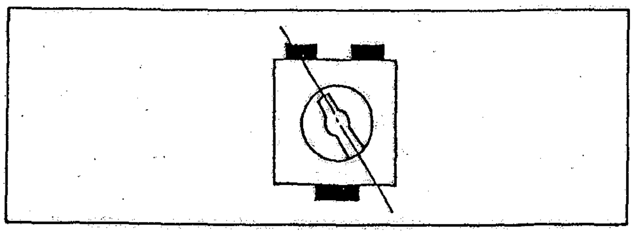


Figure C22

(4) Adjust the AWT (R−Y OFFSET) and AWT (B−Y OFFSET) controls (VR105 and VR106) so that the colour vectors move to the centre of screen on the vectorscope. (Refer to Figure C23)

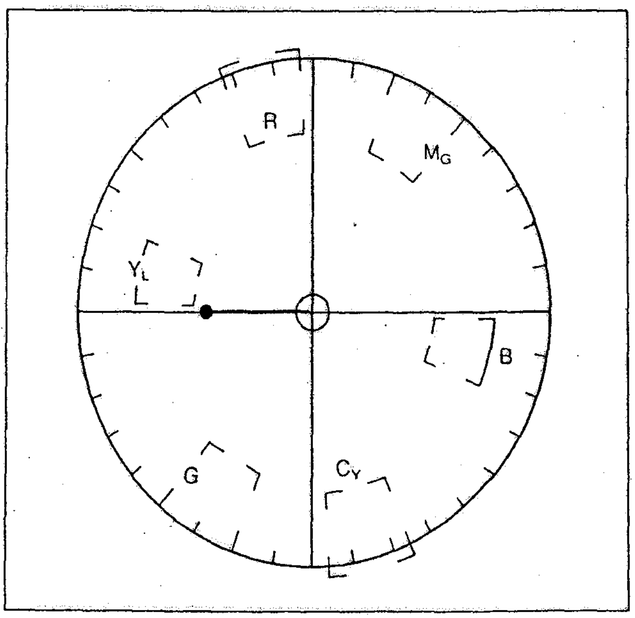


Figure C23

WITH OSCILLOSCOPE
(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR105 and VR106 so that the waveform is minimized.

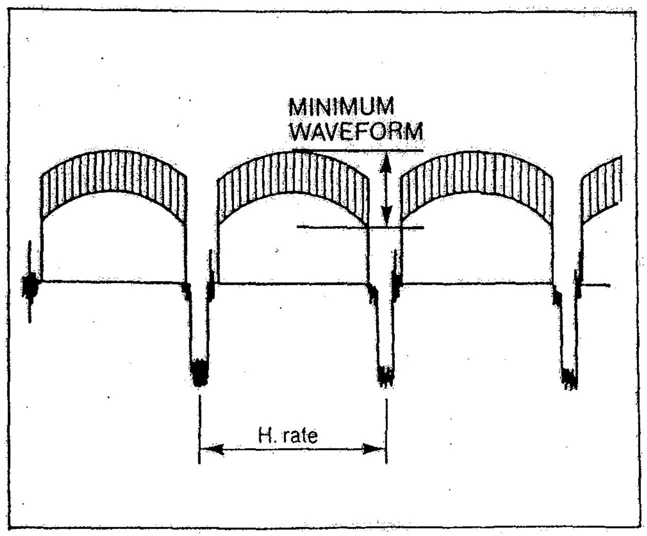


Figure C24

15-2. AWT MODE (GAIN) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR103, VR104, VR105, VR106	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR103, VR104, VR105, VR106 : Process C.B.A.

WITH VECTORSCOPE

(1) Aim the camera at the white chart using a 3200 degrees K Halogen lamp.
(2) Supply the video signal to the vectorscope.
(3) Attach the color temperature conversion filter (VFK0375) which converts 3200 degrees Kelvin to 3400 degrees Kelvin in front of the Lens and AWT Sensor.(Refer to Note 1 of item. 15-3)
(4) If the colour temperature conversion filter is not available, use a day light source. (Refer to Note 2 of item. 15-3)
(5) Adjust the AWT (R-Y GAIN) and AWT (B-Y GAIN) Controls (VR103 and VR104) so that the color vectors move to the centre of screen on the vectorscope. (Refer to Figure C25)

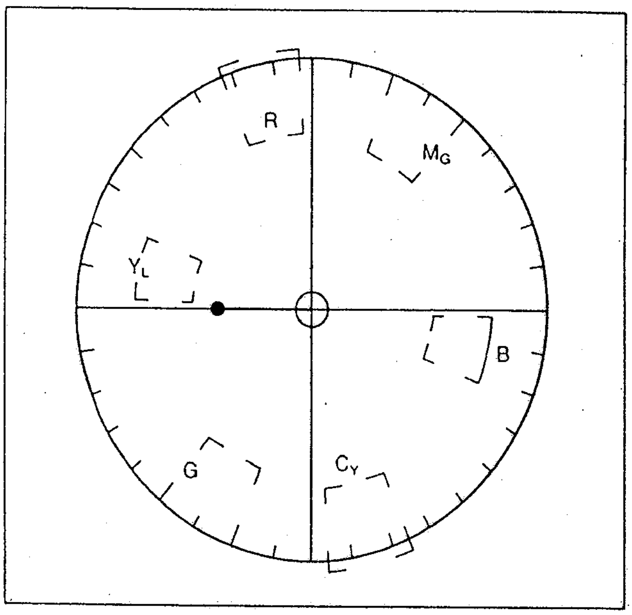


Figure C25

(6) Next, remove the colour temperature conversion filter with the fixture from the Lens.
(7) If the colour vectors do not collect at the centre, adjust the AWT (R-Y OFFSET) and AWT (B-Y OFFSET) Controls (VR105 and VR106) so that the colour vectors move to the centre of screen on the vectorscope.
(8) Repeat steps (1)-(7) so that the colour vectors collect at the center of screen on the vectorscope.

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR103, VR104, VR105 and VR106 so that the waveform is minimized.

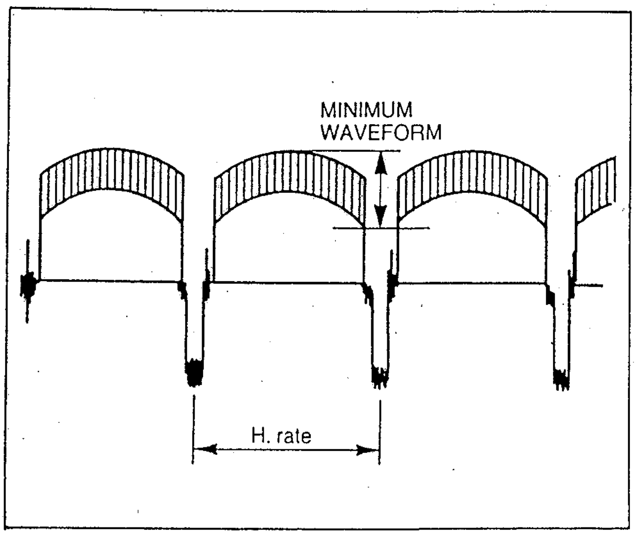


Figure C26

15-3. HIGH COLOR TEMPERATURE CLIP ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR101 VR102	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR101, VR102 : Process C.B.A.
When this adjustment is performed, previous items 15-1 and 15-2 must be completed.

WITH VECTORSCOPE

(1) Aim the camera at the white chart using a 3200 degrees K Halogen lamp .
(2) Supply the video signal to the vectorscope.
(3) Attach the colour temperature conversion filters (VFK0374 and VFK0375) which convert 3200 degrees Kelvin to 5800 degrees Kelvin in front of the Lens and AWT Sensor. (Refer to Note 1 of item. 15-3).
(4) If the colour temperature conversion filters are not available, use a day light source. (Rfer to Note 2 of item. 15-3)
(5) Adjust the Colour Temperature Clip Controls (VR101 and VR102) so that the colour vectors collect at the contre of screen on the vectorscope.

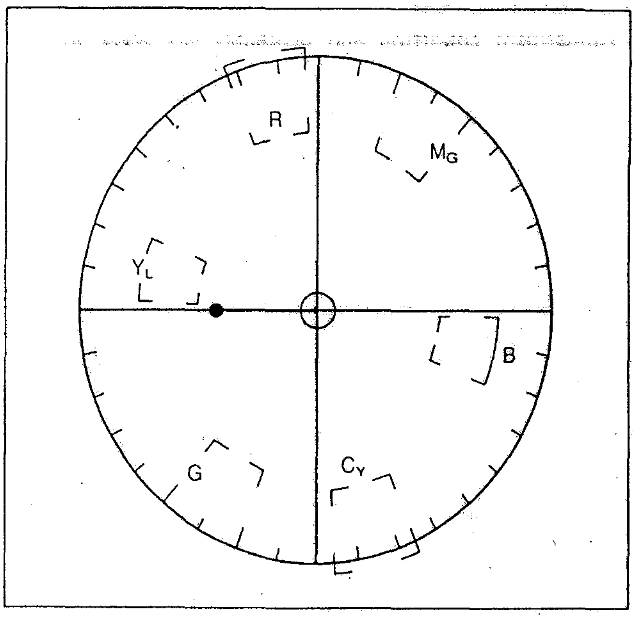


Figure C27

WITH OSCILLOSCOPE
(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR101 and VR102 so that the waveform is minimized.

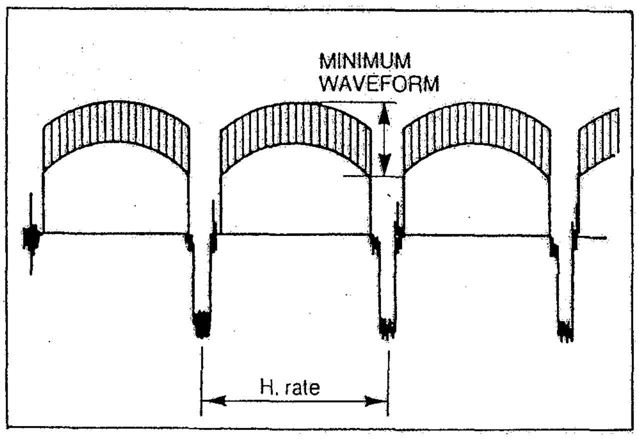

MINIMUM
WAVEFORM
H. rate

Figure C28

Note 1:
Attach the fixture to the Lens, then attach the colour temperature conversion filter to fixture. It can be procured at a Camera Store. Please construct the fixture using the sheet attached to inside cover page at the back of the Service Manual. (Refer to Figure C29)

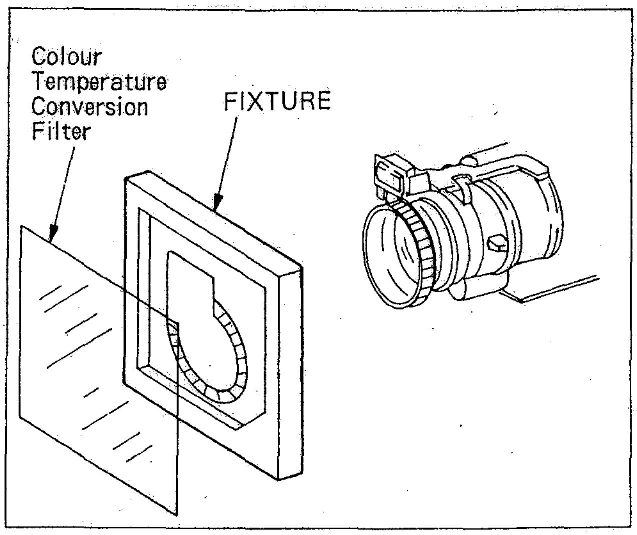

Colour
Temperature
Conversion
Filter
FIXTURE

Figure C29

Note 2:
(1) Aim the camera at a sunny outdoor source (window, etc.).
(2) Incoming light must be from an outdoor source only; source and illumination on the sensor must be more than 500Lx, and colour temperature must be within 5000 degrees −6000 degrees Kelvin.
(Refer to Figure C30)

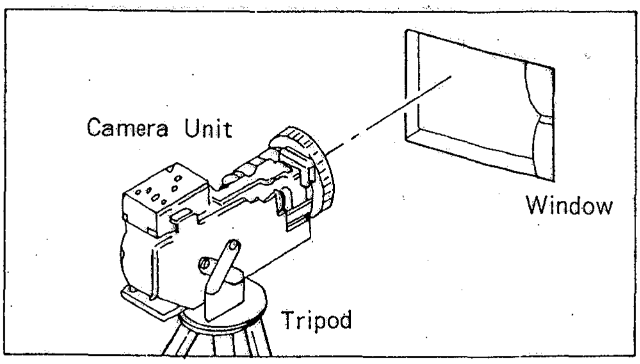

Camera Unit
Window
Tripod

Figure C30

AUTO FOCUS SECTION

PREPARATION

The following adjustments are for the Auto Focus Unit.

(1) Camera zoom is positioned at the end of TELE side.

16. AF GATE ADJUSTMENT

TP	ADJ.	IRIS CAP	CHART
TP602, TP603	C656	NO	

M. EQ.	SPEC.
OSCILLOSCOPE	T = 9.6 +- 0.4u-sec.

Note:
TP602, TP603, C656 : AF C.B.A.

(1) Set the AF Gate Control (C656) as shown in Figure C31.

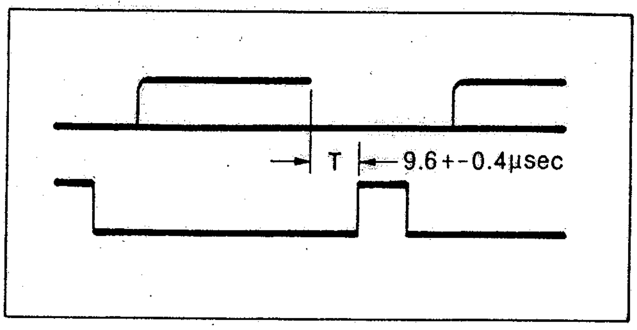


Figure C31

17. BIMOLF GAIN CONTROL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP604	VR603	YES	
M. EQ.	**SPEC.**		
OSCILLOSCOPE	A = 16V +- 0.5Vp-p		

Note:
TP604, VR603 : AF C.B.A.

(1) Set the Focus Switch to the MANUAL position.
(2) Cover the camera lens with the lens cap.
(3) Connect the scope to the TP604.
(4) Adjust the Bimolf Gain Control (VR603) so that the signal level (A) is 16V +- 0.5Vp-p.

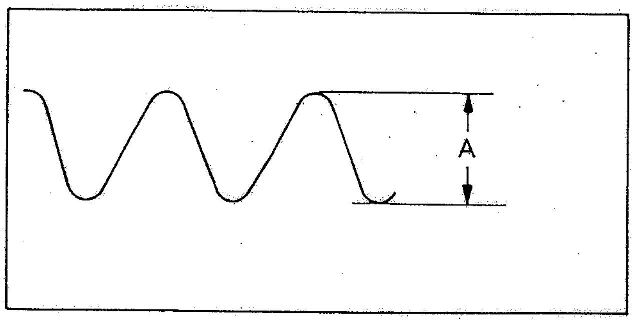


Figure C32

18. AF AMP BIAS AND GAIN ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP3, TP9, TP10, TP11	VR601, VR602	NO	GRAY SCALE CHART
M. EQ.	**SPEC.**		
D.V.M.	----------------		

Note:
TP3, TP9, TP10, TP11 : Process C.B.A.
VR601, VR602 : AF C.B.A.

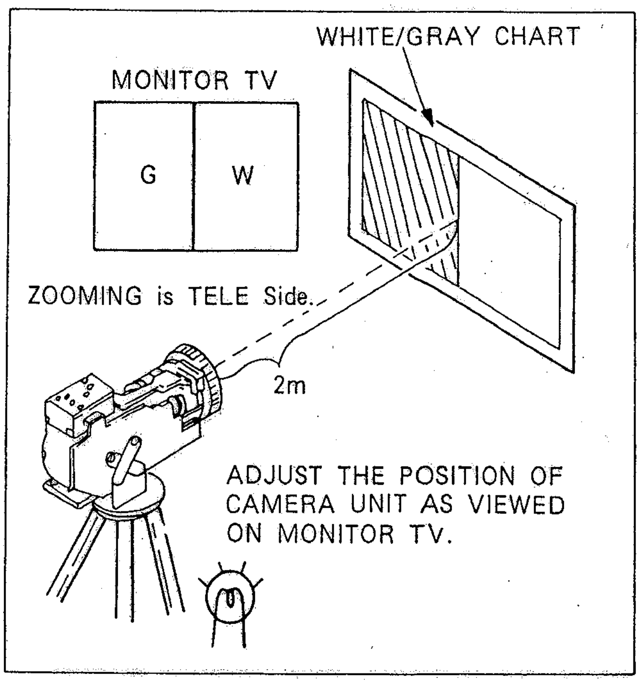
(1) Connect a jumper wire between TP3 and TP10.
(2) Adjust the AF AMP BIAS Control (VR601) so that the voltage level at TP9 is 1.74V +- 0.02V.
(3) Disconnect the jumper wire between TP3 and TP10.
(4) Next, connect a jumper wire between TP10 and TP11.
(5) Adjust the AF AMP Gain Control (VR602) so that the voltage Level of TP9 is 3.72V +- 0.05V.
(6) Disconnect the jumper wire between TP10 and TP11.
(7) Next, confirm the voltage level at TP9 by connecting a jumper wire between TP3 and TP10.
(8) If the voltage level at TP9 is not 1.74V +- 0.02V, repeat steps (1) - (6).

19. AF VH FREQUENCY ADJUSTMENT

TP	ADJ.	IRIS CAP	CHART
TP605	C621	NO	WHITE/GRAY CHART
M. EQ.		**SPEC.**	
OSCILOSCOPE		A = 1.0 +- 0.04Vp-p	

Note:
TP605, TP611, C621 : AF C.B.A.

Zoom : TELE Side
Focus: AUTO



ADJUST THE POSITION OF CAMERA UNIT AS VIEWED ON MONITOR TV.

Figure C33

(1) Aim the Camera at the White/Gray Chart attached to inside of this Service Manual.
(2) Confirm that the voltage at TP611 is 2.2V +- 0.1V.
(3) If the Voltage at TP611 is not 2.2V +- 0.1V, adjust the light source so that the voltage at TP611 is 2.2V +- 0.1V.
(4) Adjust the C621 so that the "A" level at TP605 is 1.0 +- 0.05Vp-p.

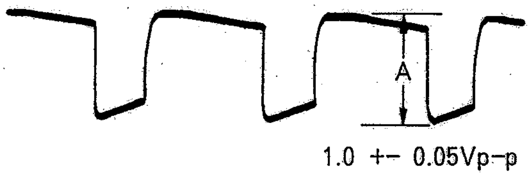


Figure C34

1-3. E.V.F. ADJUSTMENT PROCEDURES

PREPARATION

The following adjustments are for the Electronic Viewfinder.

(1) Connect the Viewfinder plug to the E.V.F. connector on the unit.
(2) The camera circuit must be completely aligned before viewfinder adjustments are made.

1. H-OSC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
Pin2 of P701	VR702	NO	BALL CHART
M. EQ.		**SPEC.**	
FREQUENCY COUNTER		15.6KHz +- 0.1KHz	

Note:
P701, VR702 : E.V.F. C.B.A.

(1) Connect the scope to Pin2 of P701, use DC
(2) Adjust the H-OSC (VR702) so that the frequency is 15.8 +- 0.1 KHz.

2. CENTERING ADJUSTMENT

(1) Aim the camera at the registration chart.
(2) Adjust the Deflection Yoke Centering Magnets by turning them so that the picture on monitor TV is centered.

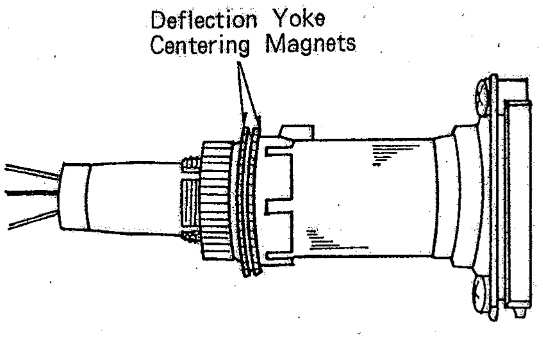


Figure C35

3. FOCUS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR704	NO	BALL CHART
M. EQ.		**SPEC.**	
VIEWFINDER		BEST RESOLUTIONON	

Note:
VR704 : E.V.F. C.B.A.

(1) Aim the camera at the Ball chart.
(2) Adjust the focus control (VR704) for best resolution in the viewfinder.

4. V.SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR701	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		VERTICAL SIZE IS FIXED.	

Note:
VR701 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the Vertical Size (VR701) so the Vertical Size is correct and the picture does not roll as shown in Figure C36.

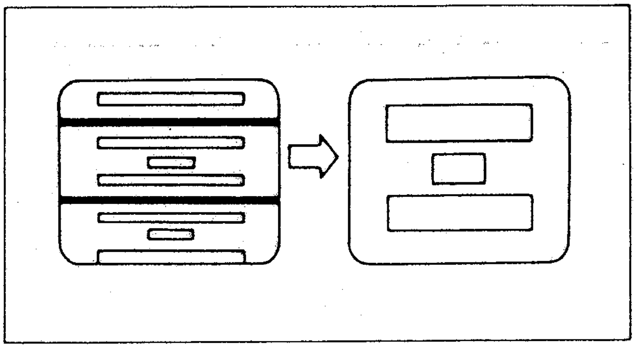


Figure C36

5. BRIGHTNESS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR705	NO	GRAY SCALE CHART
M. EQ.	**SPEC.**		
VIEWFINDER	NATURAL GRADATION		

Note:
VR705 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale shart.
(2) Adjust the Brightness Control (VR705) so that the black and white Bars in the E.V.F. screen are the same as they are in the monitor TV screen.

2. ELECTRICAL ADJUSTMENT FOR VTR SECTION

2-1. TEST EQUIPMENT & TOOLS

The following equipment is required for adjustment of the VTR section of VHS Movie.

1) VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range : 0.01~50V
2) Dual Trace Oscilloscope
   Voltage Range : 0.06~50V/div
   Frequency Range : 0~10MHz
   Probe : 10:1 ro 1:1
3) Frequency counter
   Frequency Range : 0~10MHz
4) Signal Generator (Sinewave)
   Frequency Range :0~10MHz
5) Video Sweep Generator
   Frequency Range : 0~10MHz
6) Colour Monitor TV
7) Plastic Tip Driver
8) VHS Alignment Tape

PREPARATION I (For EO/EN/A/EA/EM/AM models)

(1) Remove the casing panels.
(Refer to the desassemble section)
(2) Supply the video signal and audio signal to the video section by using the Line Adaptor as shown below.

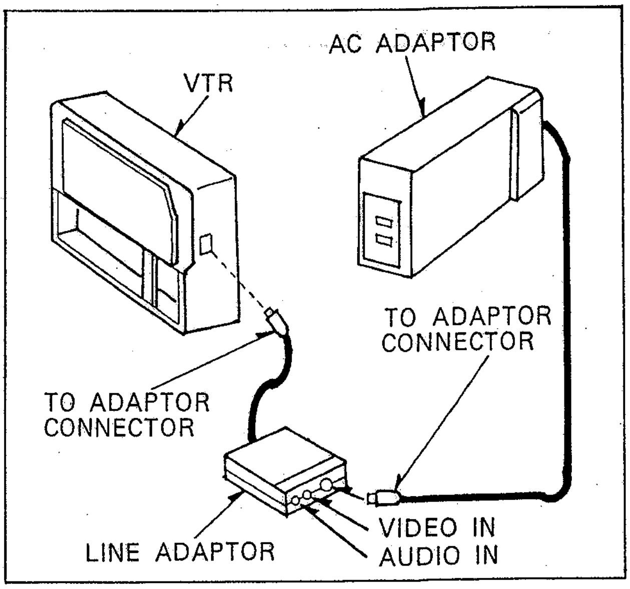
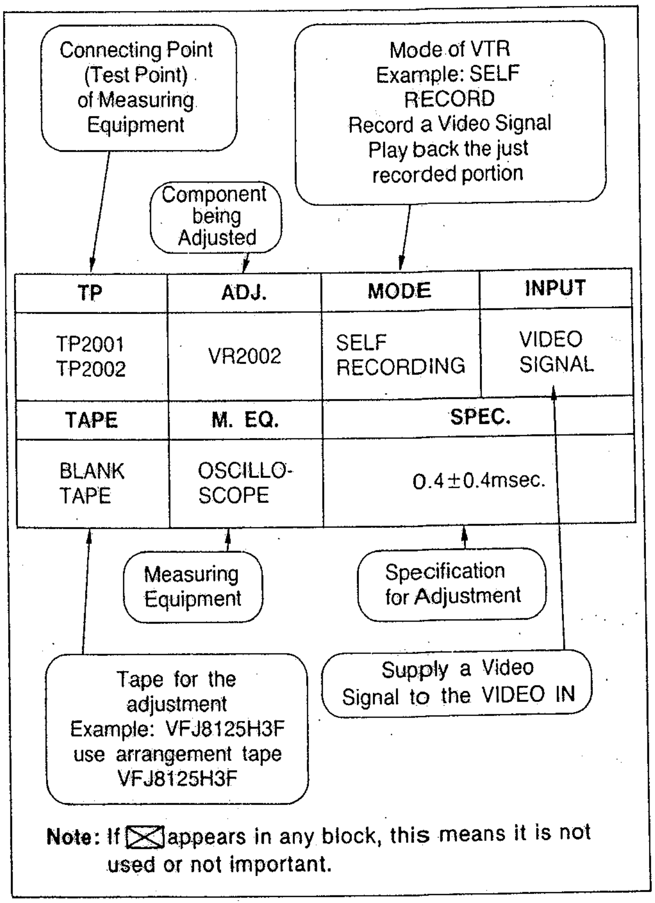

AC ADAPTOR
VTR
TO ADAPTOR CONNECTOR
TO ADAPTOR CONNECTOR
LINE ADAPTOR
VIDEO IN
AUDIO IN

Figure E1

Note:
The Line Adaptor is available to check the only VTR section.

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Component being Adjusted
Mode of VTR Example: SELF RECORD Record a Video Signal Play back the just recorded portion
Measuring Equipment
Specification for Adjustment
Tape for the adjustment Example: VFJ8125H3F use arrangement tape VFJ8125H3F
Supply a Video Signal to the VIDEO IN

TP	ADJ.	MODE	INPUT
TP2001 TP2002	VR2002	SELF RECORDING	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLOSCOPE	0.4±0.4msec.	

Note: If ☒ appears in any block, this means it is not used or not important.

Figure E2

FOR TRIGGERING OF THE OSCILLOSCOPE

To trigger the Oscilloscope, the following test point is used.
H.rate : TP3002 (Video output)
V.rate : TP2001 (Head Switching signal)

2-2. POWER SUPPLY SECTION

1. REG. 9V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1002	VR1002	REC • PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	$8.6^{+0.1}_{-0.05}$V	

2. REG. 5V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1003	VR1003	CAMERA RECORDING	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	4.91±0.025V	

3. REG. 16V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1001	VR1001	REC • PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	15.2±0.05V	

4. UNDER CUT ADJUSTMENT

TP	ADJ.	MODE	INPUT
P6011-(6)	VR6002	REC • PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLOSCOPE	HIGH → PULSE → LOW	

(1) Supply the DC voltage 10.5+−0.05V to the 14P multi−connector Pin (1) Hot and Pin (3) GND.
(2) Connect the oscilloscope to P6011−(6).
(3) Turn the under cut control (VR6002) fully counter clockwise.
(4) Turn VR6002 clockwise slowly until the wave−form is changed from high to low through the pulse trains.

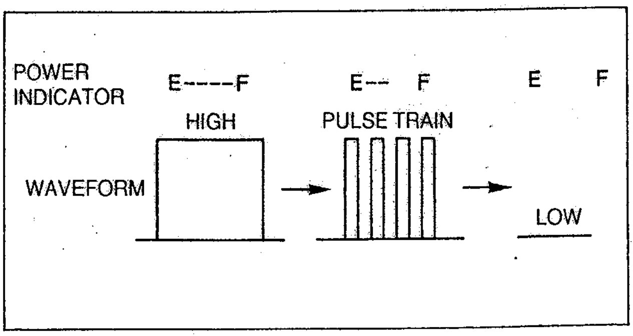

POWER INDICATOR
E----F
E-- F
E F
HIGH
PULSE TRAIN
WAVEFORM
LOW

Figure E3

2-3. SERVO SECTION

1. PG SHIFTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2001 TP3002	VR2001	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE (VFM8080HMFPH)	OSCILLOSCOPE	6.5H±0.5H	

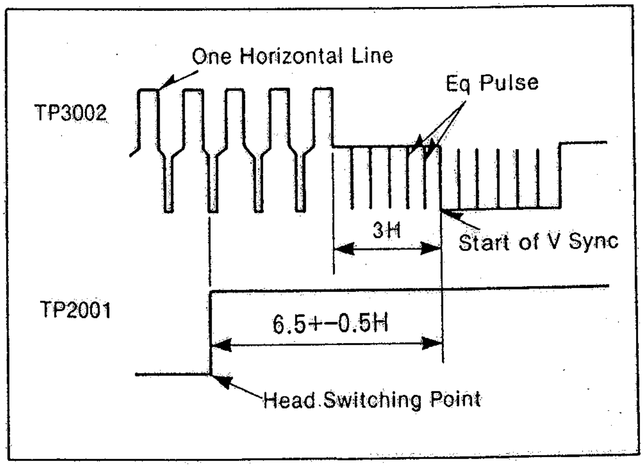

One Horizontal Line
Eq Pulse
TP3002
3H
Start of V Sync
TP2001
6.5+−0.5H
Head Switching Point

Figure E4

2-4. LUMINANCE & CHROMINANCE SECTION

1. E-E LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3002	VR3001	STOP	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	A=1.0±0.1Vp-p B=0.6±0.1Vp-p	

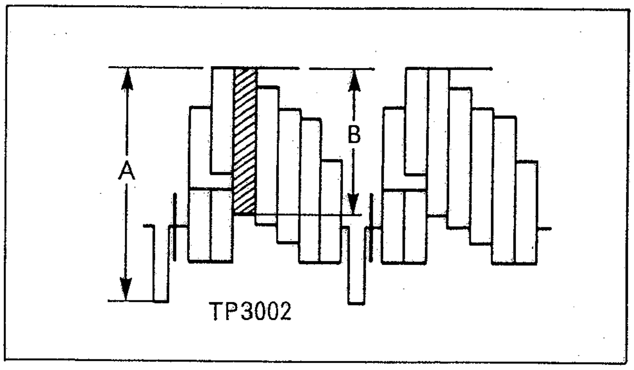


Figure E5

2. SYNC TIP FREQUENCY AND DEVIATION ADJUSTMENT

2-1. Sync Tip Frequency Adjustment

TP	ADJ.	MODE	INPUT
TP3007	VR3004	REC • PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	FREQ. COUNTER	3.4MHz±0.05MHz	

2-2. Deviation Adjustment

TP	ADJ.	MODE	INPUT
TP3003 (HOT) TP3004 (GND)	VR3005	REC • PLAY	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE FREQ. COUNTER	INNER BEAT IS MAXIMUM	

(1) Supply colour bar video signal to 14P multi connector through Line adaptor.

(2) Connect a sinal generator (sine wave) to TP3007 on Main C.B.A. through a resistor (1 Kohm). Set the frequency and output level of the signal generator.
Frequency : 4.3MHz +− 0.05MHz
Output level : 0.1Vp−p

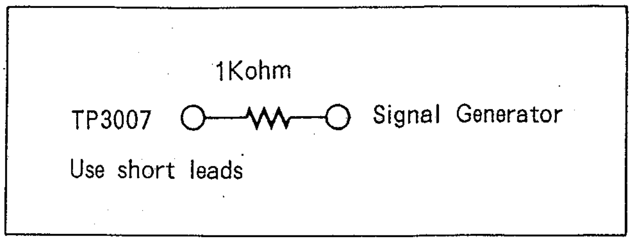

1Kohm
TP3007
Signal Generator
Use short leads

Figure E6

(3) Connect the oscilloscope to TP3003 (HOT) and TP3004 (GND) on Main C.B.A. Head Amp Section, use TP2001 as a trigger.

(4) Adjust VR3005 so that inner beat at white portion of colour bar becomes maximum.

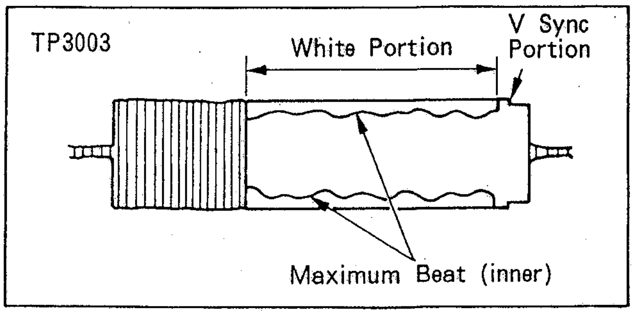

TP3003
White Portion
V Sync Portion
Maximum Beat (inner)

Figure E7

(Misadjustment)

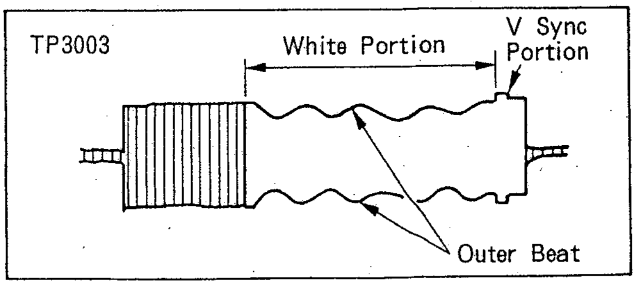

TP3003
White Portion
V Sync Portion
Outer Beat

Figure E8

3. AFC ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP8003	VR8002	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	FREQ. COUNTER	4.2±0.05MHz	

(1) Connect Diode to TP8002 as shown below.

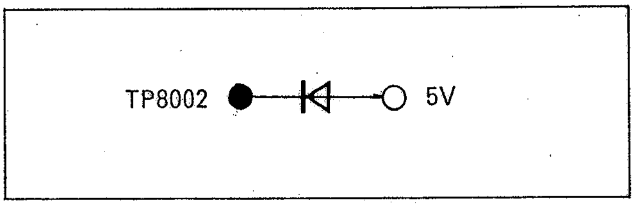


Figure E9

(2) Connect the frequency counter to TP8003.
(3) Adjust the VR8002 so that frequency become 4.2+-0.05MHZ.

4. WHITE AND DARK CLIP ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3005	VR3002 VR3003	REC	COLOUR BAR (W/WHITE WINDOW)
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	A=188±5% B=155±5%	

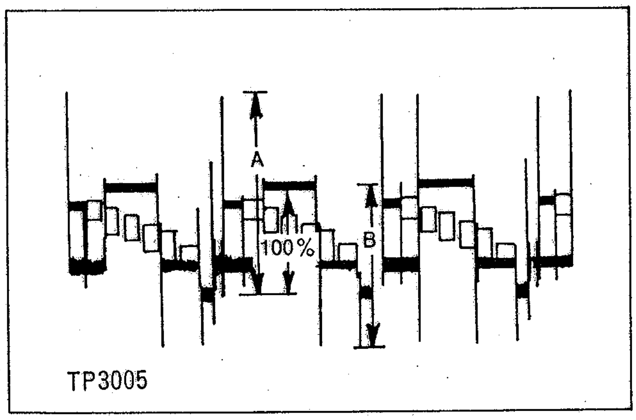


Figure E10

5. RECORDING CURRENT ADJUSTMENT

Preparation:
Connect the Electrolytic Capacitor (6V/47u) between TP3007(+) to GND.

5-1. REC CHROMA LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3003 (HOT) TP3004 (GND)	VR8001	REC • PLAY	COLOUR BAR (W/WHITE WINDOW)
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	40±5mVp-p	

(1) Connect the Oscilloscope to TP3003 (HOT) and TP3004 (GND).
(2) Eliminate Luminance signal by turning VR3006.
(3) Adjust VR8001 so that Chroma level become 45+-5mVp-p.

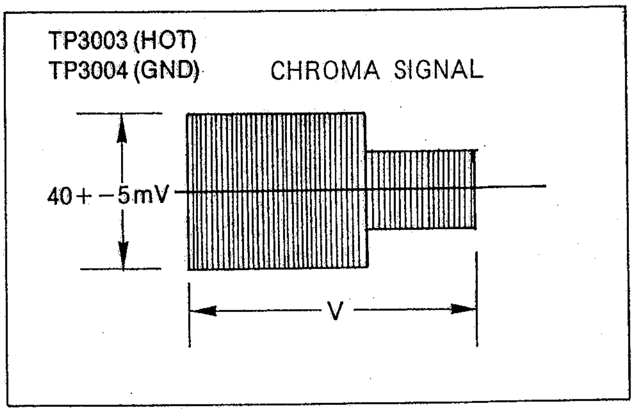


Figure E11

5-2. LUMINANCE RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3003 (HOT) TP3004 (GND)	VR3006	REC • PLAY	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	140mV±5mVp-p	

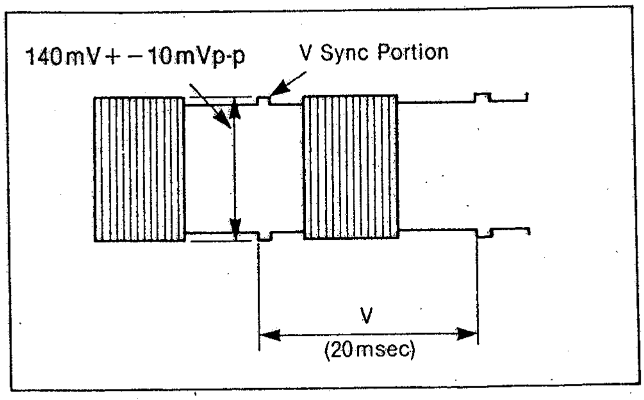


Figure E12

6. LINE NOISE CANCEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3008	VR3012	SELF RECORDING	
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLOSCOPE	Less than 16mVp-p	

(1) Record the video signal.
(2) Connect the oscilloscope to TP3008.
(3) Playback just recorded portion.
(4) Adjust VR3012 so that level between sync and white 100% become less than 16mVp-p.

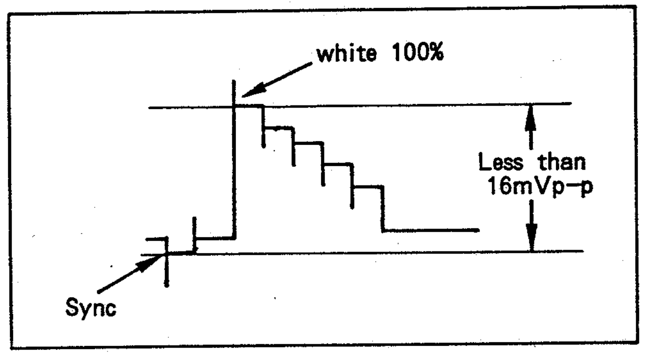

white 100%
Less than 16mVp-p
Sync

Figure E13

7. VIDEO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3002	VR3007	SELF RECORDING	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLOSCOPE	A=1.0±0.05Vp-p B=0.6±0.15Vp-p	

(1) Record the colour bar signal.
(2) Connect the oscilloscope to TP3002.
(3) Adjust the VR3007 so that level become A=1.0+−0.05Vp−p B=0.6+−0.15Vp−p

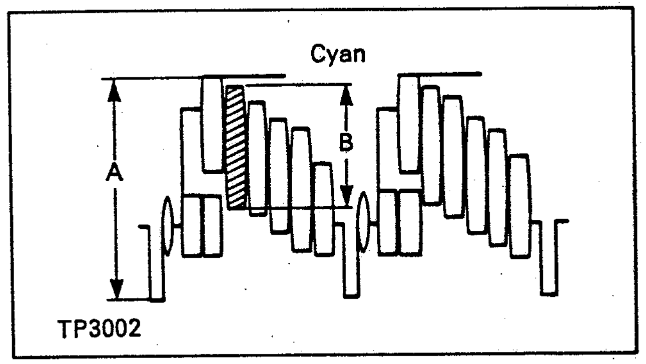

Cyan
A
B
TP3002

Figure E14

2-5. AUDIO SECTION

1. AUDIO BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4002 (HOT) TP4003 (GND)	C4002	REC • PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	2.9mVrms±0.1mVrms	

2. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
LINE OUT (TP4001)	VR4001	SELF RECORDING	1KHz AUDIO -60dB SIGNAL/ VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERATOR/D.V.M.	EE LEVEL=−8.0±2dB P.B LEVEL=−±1dB	

2-6. SYSTEM CONTROL SECTION

1. CHARACTER POSITION ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIEW FINDER	VR6001	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	VIEW FINDER	CHARACTER IS CENTER	

(1) Connect the EVF unit to the VTR unit.
(2) Display the battery remaining indicator and counter number on the EVF.
(3) Adjust the osc control (VR6001) so that the character position is shown below.

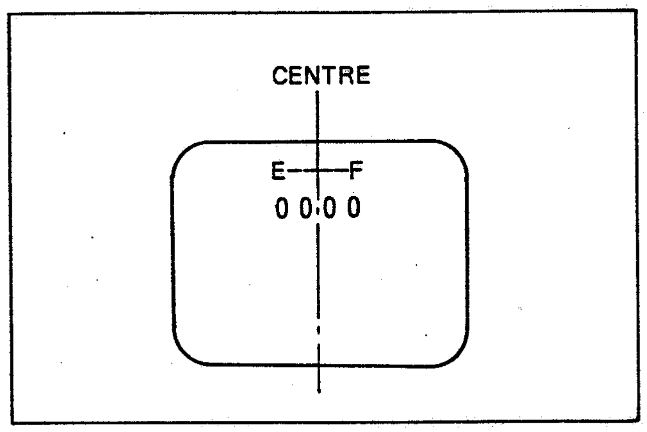
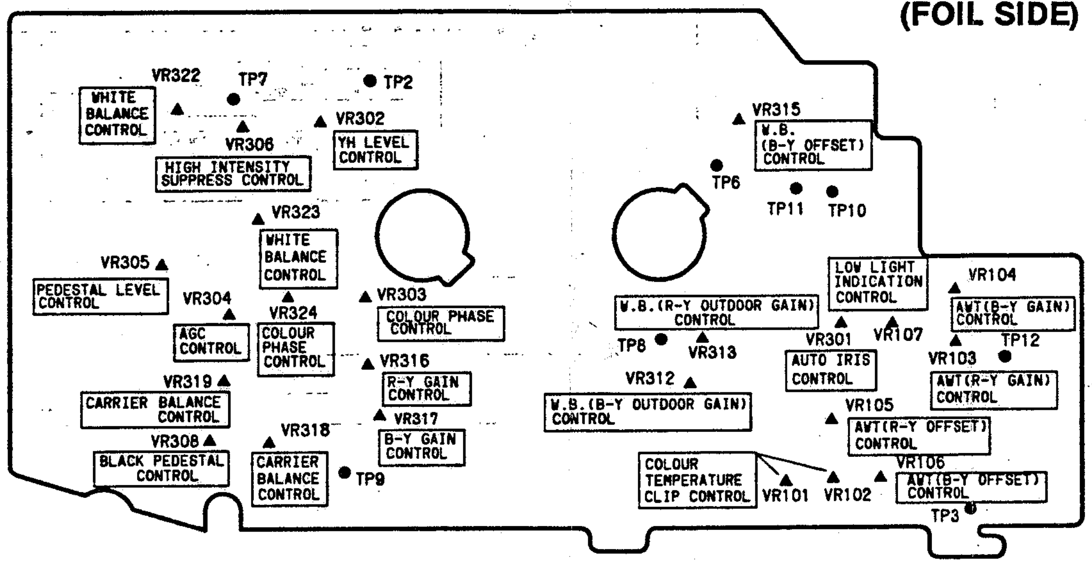

CENTRE
E
F
0 0 0 0

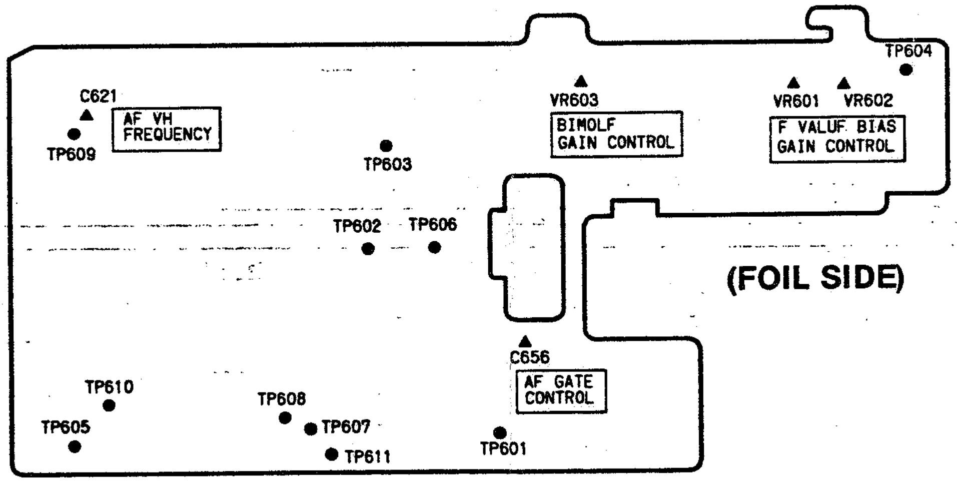
Figure E15

LOCATION OF TEST POINTS & CONTROLS

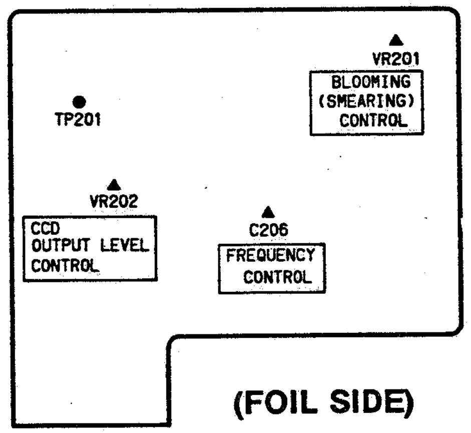
PROCESS C.B.A. (VEP23063E)


(FOIL SIDE)
VR322
WHITE BALANCE CONTROL
TP7
TP2
VR306
HIGH INTENSITY SUPPRESS CONTROL
VR302
YH LEVEL CONTROL
VR315
W.B. (B-Y OFFSET) CONTROL
TP6
TP11
TP10
VR323
WHITE BALANCE CONTROL
VR305
PEDESTAL LEVEL CONTROL
VR304
AGC CONTROL
VR324
COLOUR PHASE CONTROL
VR303
COLOUR PHASE CONTROL
VR316
R-Y GAIN CONTROL
VR317
B-Y GAIN CONTROL
VR319
CARRIER BALANCE CONTROL
VR308
BLACK PEDESTAL CONTROL
VR318
CARRIER BALANCE CONTROL
TP9
W.B.(R-Y OUTDOOR GAIN) CONTROL
TP8
VR313
VR312
W.B.(B-Y OUTDOOR GAIN) CONTROL
LOW LIGHT INDICATION CONTROL
VR301
VR107
AUTO IRIS CONTROL
VR104
AWT(B-Y GAIN) CONTROL
VR103
TP12
AWT(R-Y GAIN) CONTROL
VR105
AWT(R-Y OFFSET) CONTROL
COLOUR TEMPERATURE CLIP CONTROL
VR101
VR102
VR106
AWT(B-Y OFFSET) CONTROL
TP3

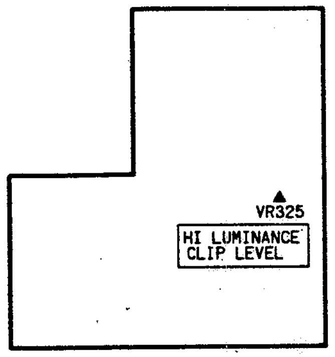
AUTO FOCUS C.B.A. (VEP28015D)


C621
AF VH FREQUENCY
TP609
TP603
VR603
BIMOLF GAIN CONTROL
VR601
VR602
F VALUF BIAS GAIN CONTROL
TP604
TP602
TP606
(FOIL SIDE)
C656
AF GATE CONTROL
TP610
TP605
TP608
TP607
TP611
TP601

SENSOR C.B.A. (VEP22073B)


VR201
BLOOMING (SMEARING) CONTROL
TP201
VR202
CCD OUTPUT LEVEL CONTROL
C206
FREQUENCY CONTROL
(FOIL SIDE)

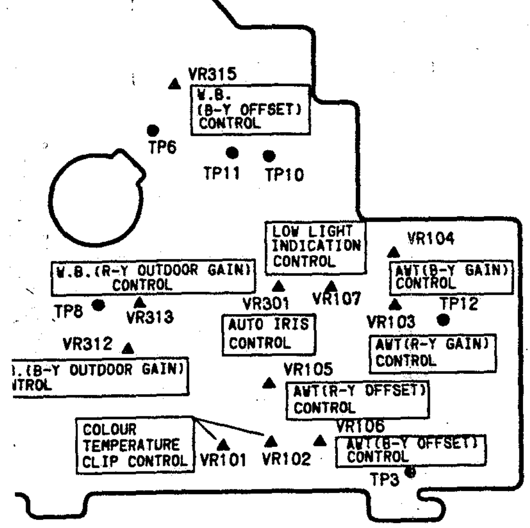
SUB PROCESS C.B.A. (VEP23068C)


VR325
HI LUMINANCE CLIP LEVEL
(FOIL SIDE)

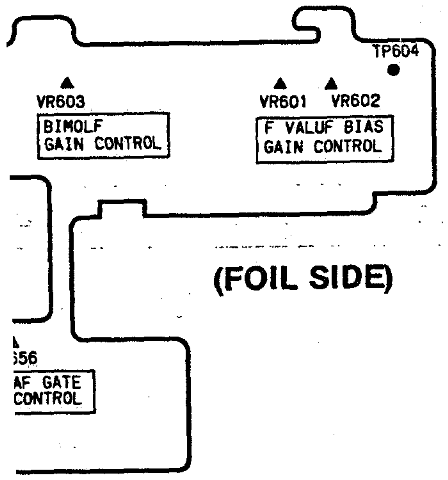
OINTS & CONTROLS

(VEP23063E)

(FOIL SIDE)

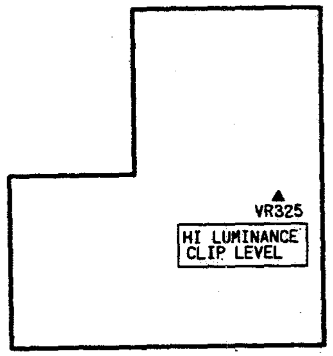

VR315
W.B.
(B-Y OFFSET)
CONTROL
TP6
TP11
TP10
LOW LIGHT
INDICATION
CONTROL
VR104
W.B.(R-Y OUTDOOR GAIN)
CONTROL
AWT(B-Y GAIN)
CONTROL
TP8
VR313
VR301
VR107
TP12
AUTO IRIS
CONTROL
VR103
VR312
AWT(R-Y GAIN)
CONTROL
.(B-Y OUTDOOR GAIN)
ITROL
VR105
AWT(R-Y OFFSET)
CONTROL
VR106
COLOUR
TEMPERATURE
CLIP CONTROL
VR101
VR102
AWT(B-Y OFFSET)
CONTROL
TP3

. (VEP28015D)


TP604
VR603
BIMOLF
GAIN CONTROL
VR601
VR602
F VALUF BIAS
GAIN CONTROL
56
AF GATE
CONTROL

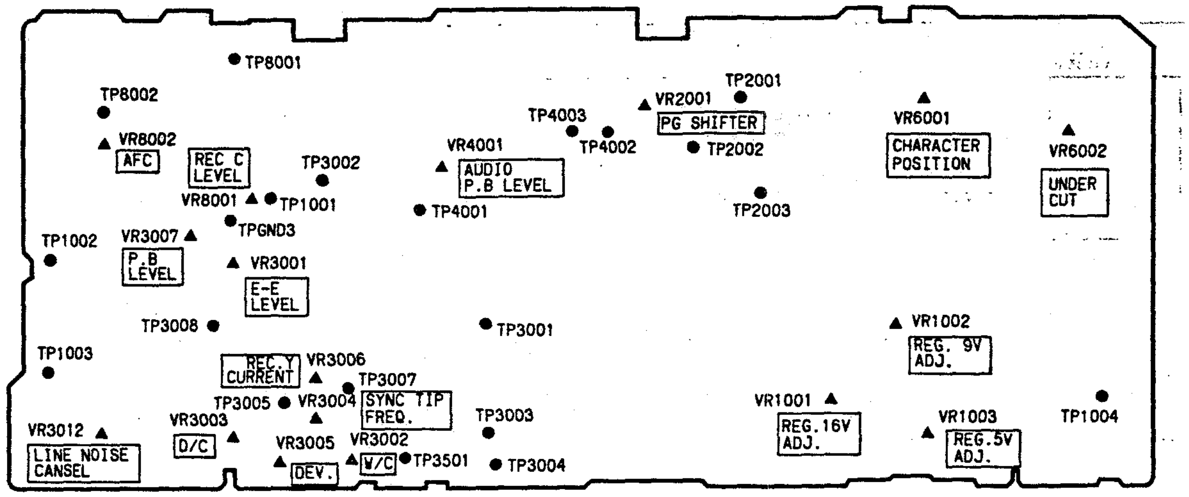
(FOIL SIDE)

SUB PROCESS C.B.A. (VEP23068C)


VR325
HI LUMINANCE
CLIP LEVEL

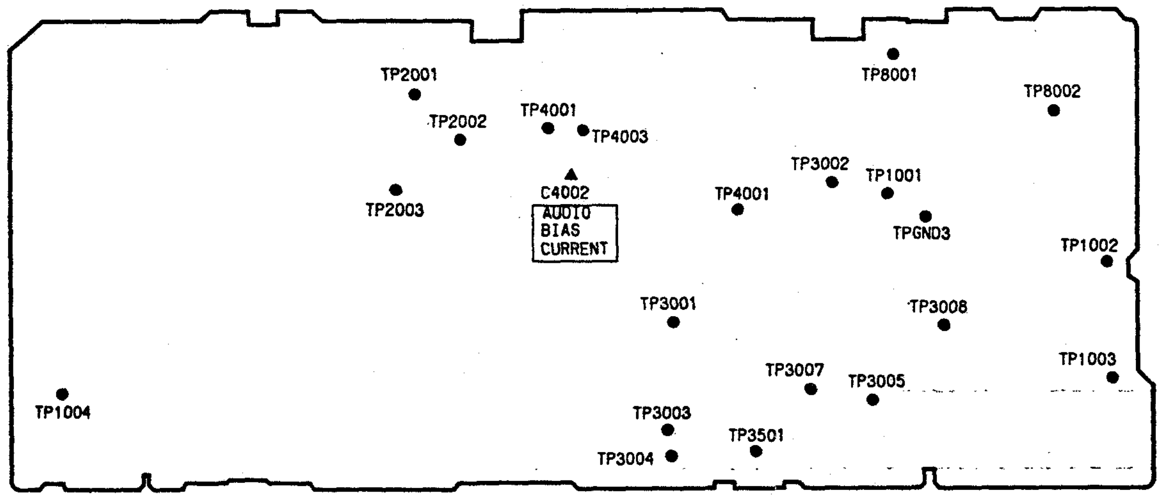
(FOIL SIDE)

MAIN C.B.A. (VEP03480B)


TP8001
TP8002
VR8002
AFC
REC C
LEVEL
TP3002
VR8001
TP1001
TPGND3
TP1002
VR3007
P.B
LEVEL
VR3001
E-E
LEVEL
TP3008
TP1003
REC.Y
CURRENT
VR3006
TP3007
TP3005
VR3004
SYNC TIP
FREQ.
VR3012
VR3003
D/C
VR3005
DEV.
VR3002
W/C
TP3501
LINE NOISE
CANSEL
VR4001
AUDIO
P.B LEVEL
TP4001
TP4003
TP4002
VR2001
TP2001
PG SHIFTER
TP2002
TP2003
TP3001
TP3003
TP3004
VR6001
CHARACTER
POSITION
VR6002
UNDER
CUT
VR1002
REG. 9V
ADJ.
VR1001
REG.16V
ADJ.
VR1003
REG.5V
ADJ.
TP1004

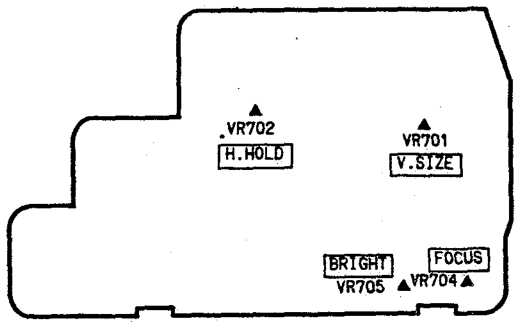
(FOIL SIDE)

MAIN C.B.A. (VEP03480B)


TP2001
TP2002
TP2003
TP4001
TP4003
C4002
AUDIO
BIAS
CURRENT
TP8001
TP8002
TP3002
TP1001
TP4001
TPGND3
TP1002
TP3001
TP3008
TP3007
TP3005
TP1003
TP1004
TP3003
TP3501
TP3004

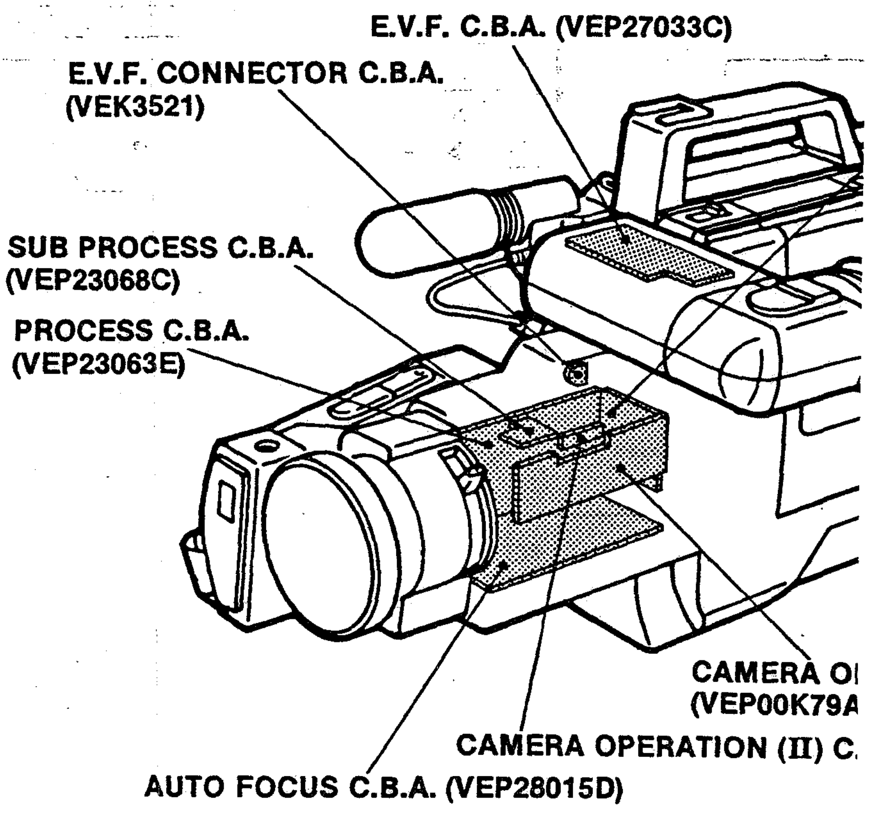
(COMPONENT SIDE)

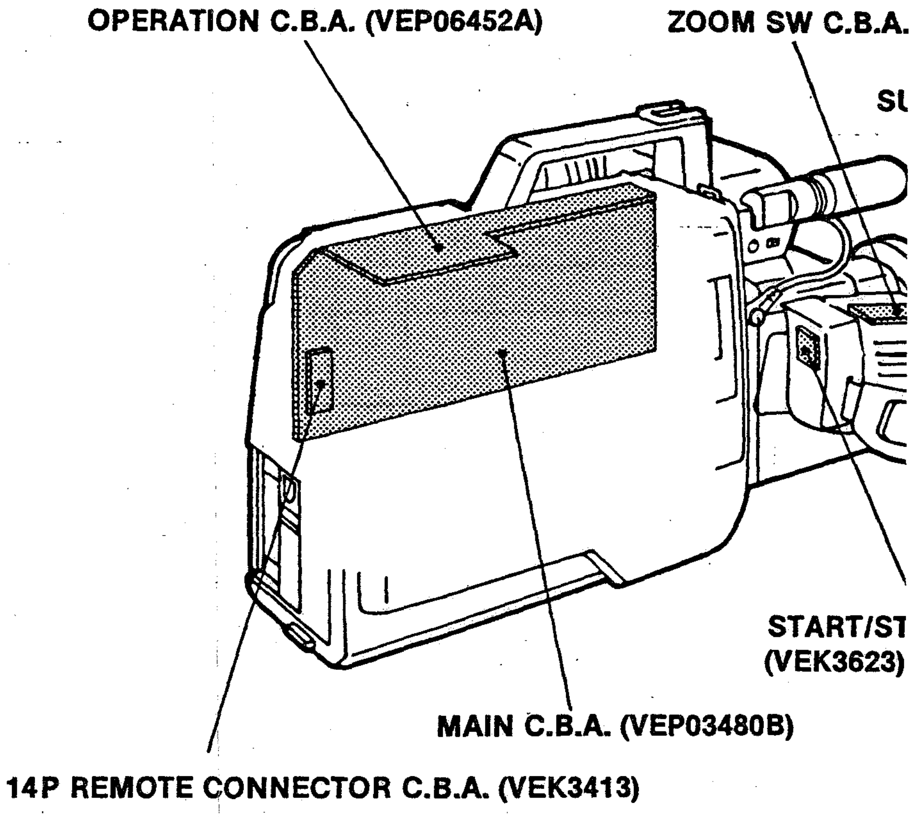
E.V.F. C.B.A. (VEP27033C)


VR702
H.HOLD
VR701
V.SIZE
BRIGHT
VR705
FOCUS
VR704

(FOIL SIDE)

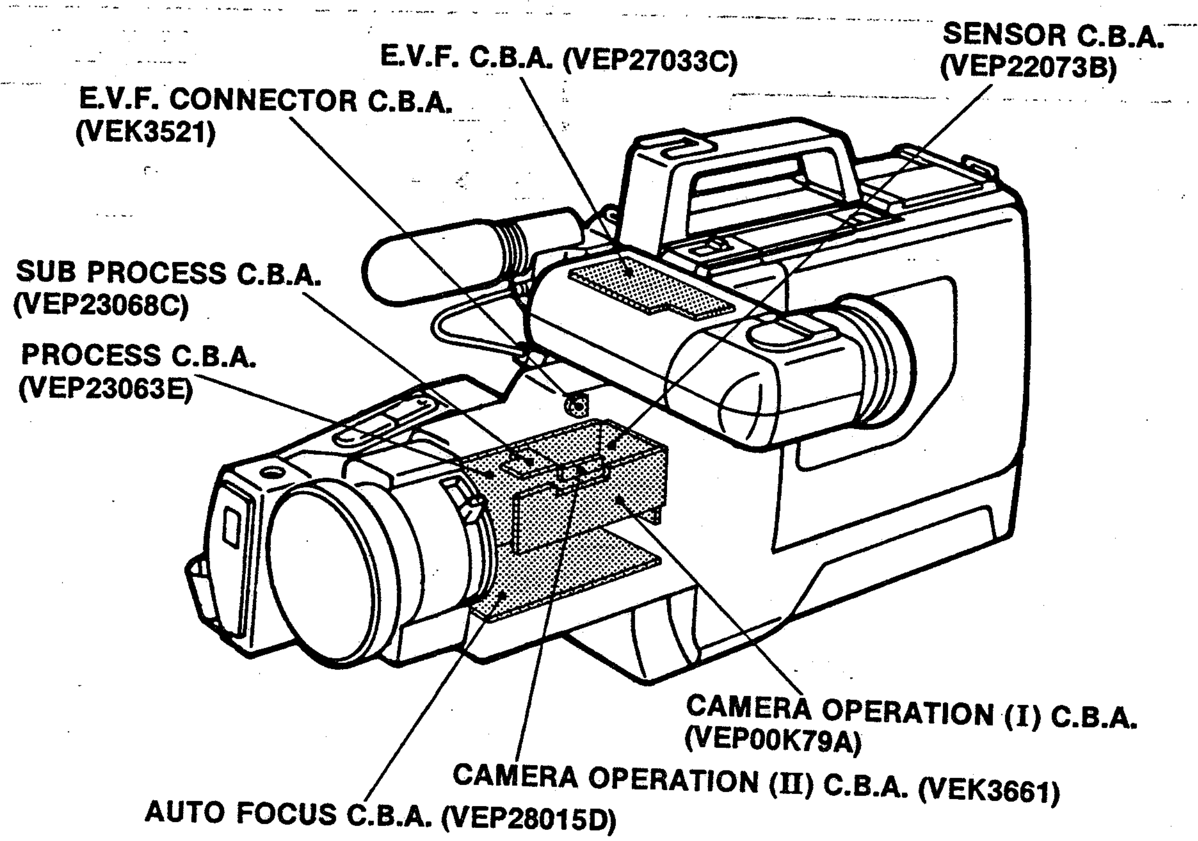
CIRCUIT BOARD LAYOUT

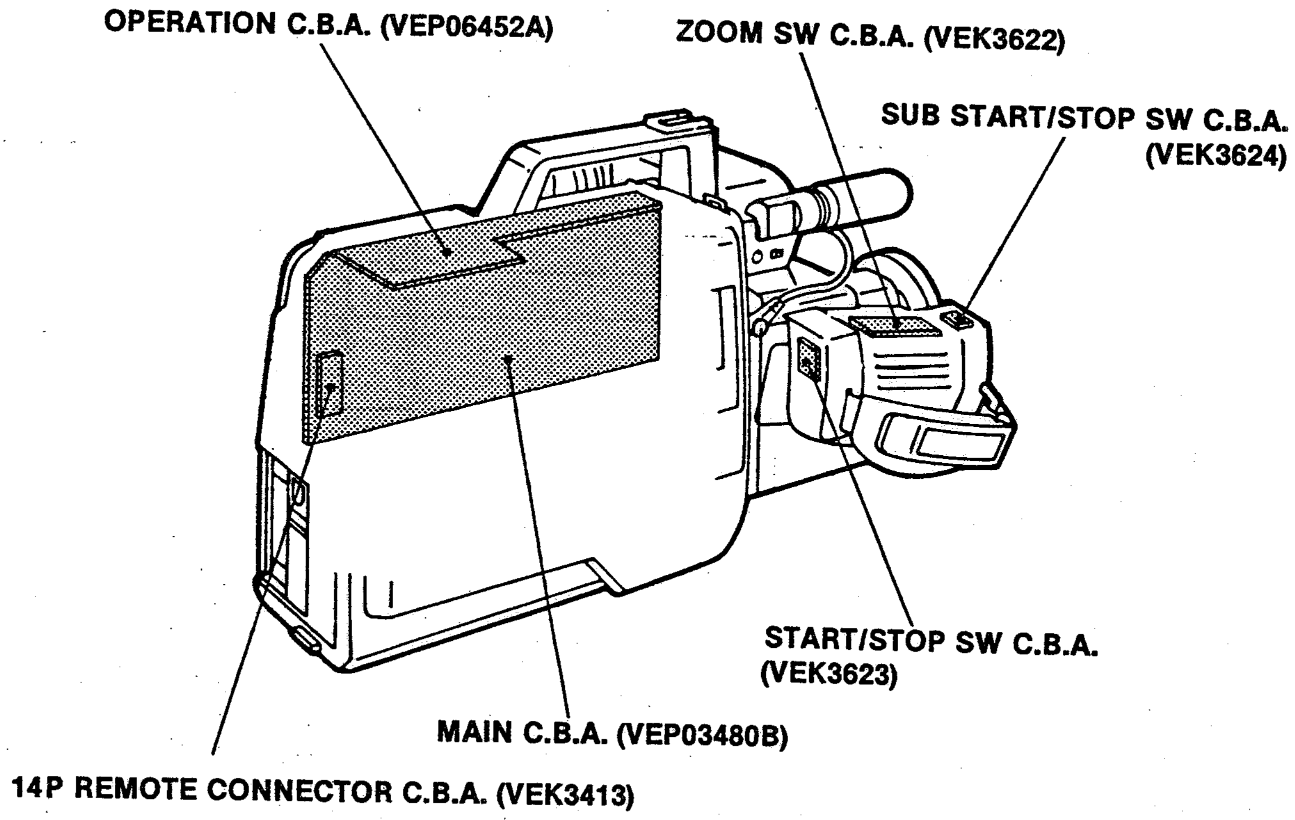

E.V.F. C.B.A. (VEP27033C)
E.V.F. CONNECTOR C.B.A.
(VEK3521)
SUB PROCESS C.B.A.
(VEP23068C)
PROCESS C.B.A.
(VEP23063E)
CAMERA O
(VEP00K79A
CAMERA OPERATION (II) C.
AUTO FOCUS C.B.A. (VEP28015D)


OPERATION C.B.A. (VEP06452A)
ZOOM SW C.B.A.
SU
START/ST
(VEK3623)
MAIN C.B.A. (VEP03480B)
14P REMOTE CONNECTOR C.B.A. (VEK3413)

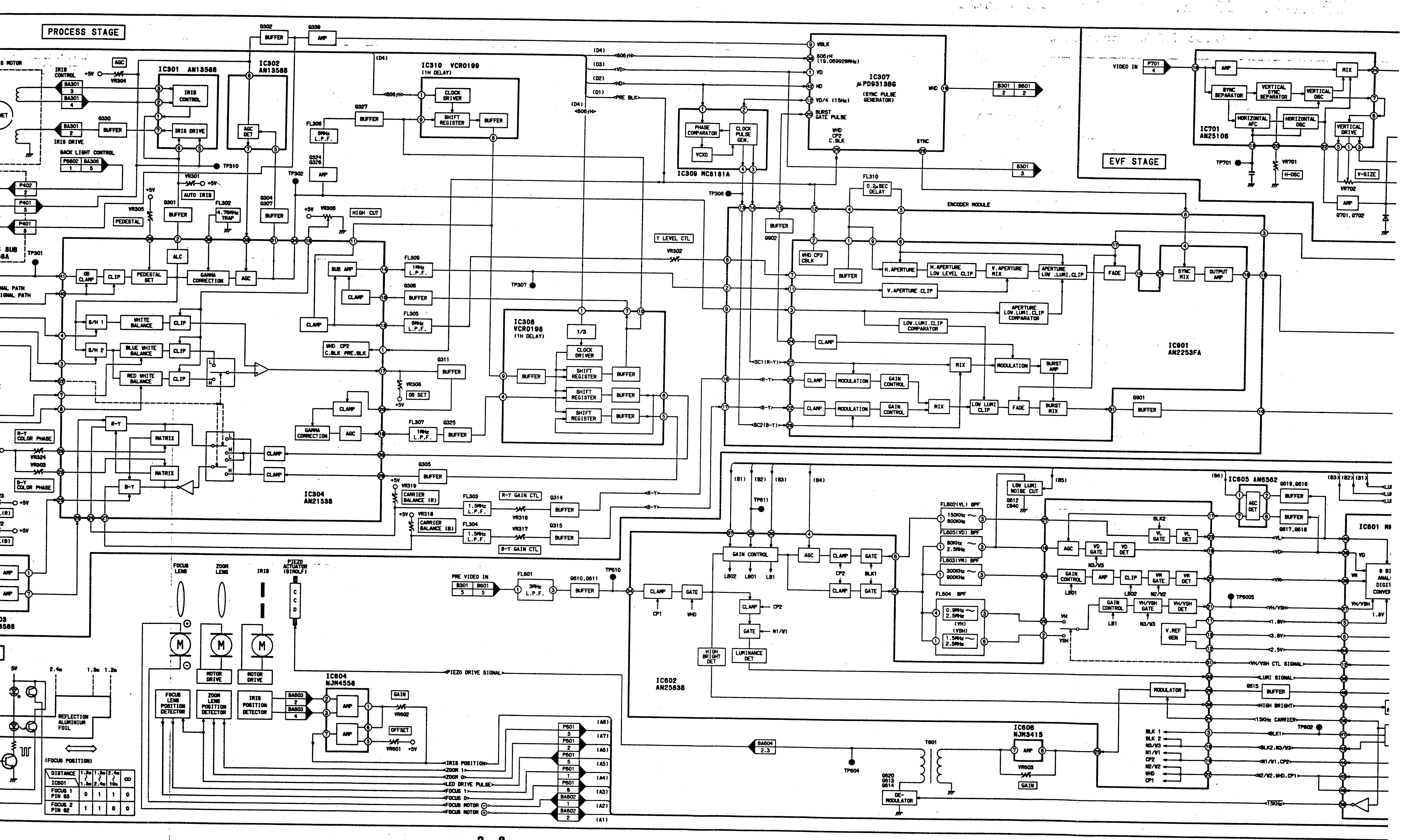
VR6002
UNDER CUT
TP1004
002
TP1002
TP1003

CIRCUIT BOARD LAYOUT

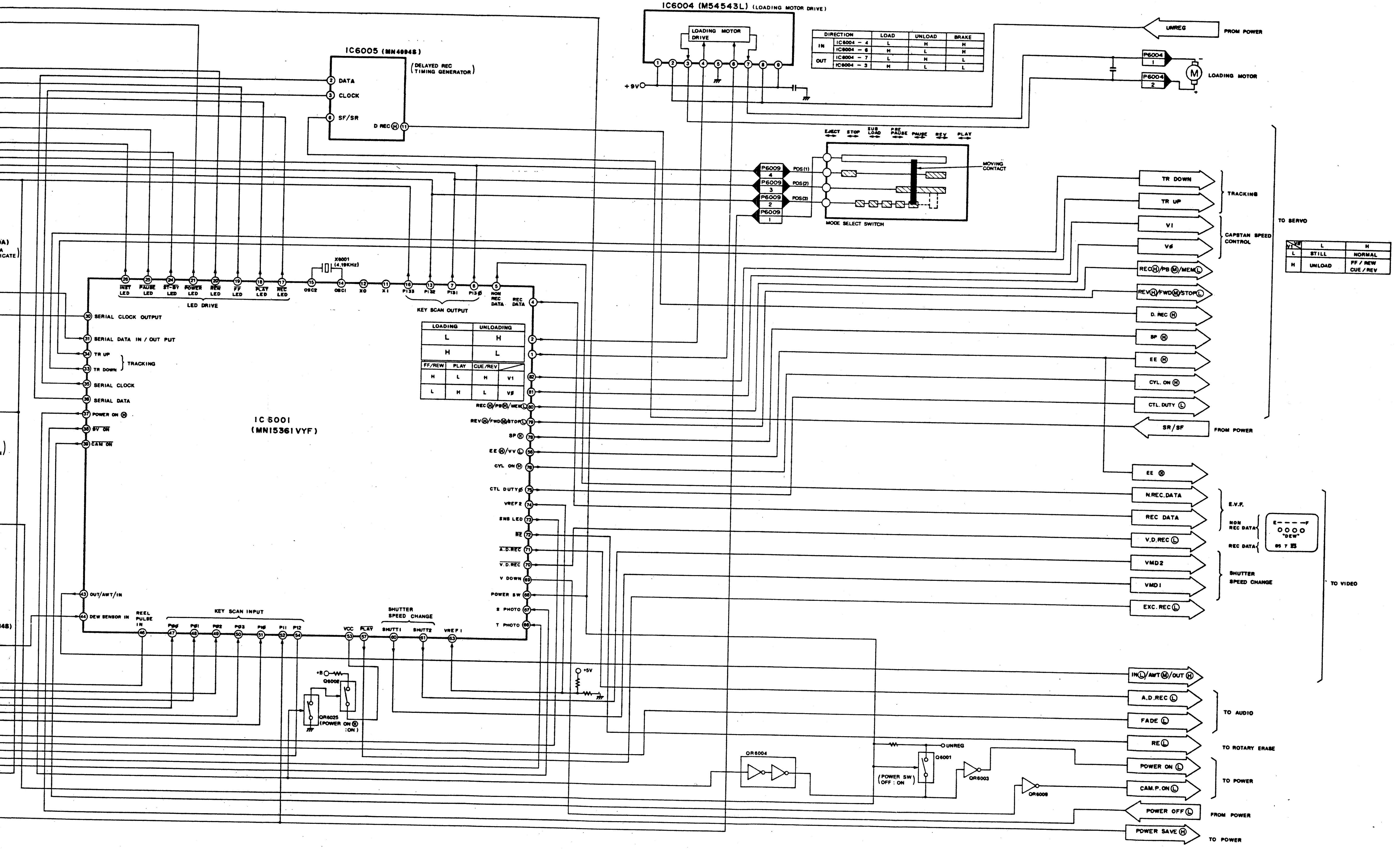

E.V.F. C.B.A. (VEP27033C)
SENSOR C.B.A. (VEP22073B)
E.V.F. CONNECTOR C.B.A. (VEK3521)
SUB PROCESS C.B.A. (VEP23068C)
PROCESS C.B.A. (VEP23063E)
CAMERA OPERATION (I) C.B.A. (VEP00K79A)
CAMERA OPERATION (II) C.B.A. (VEK3661)
AUTO FOCUS C.B.A. (VEP28015D)


OPERATION C.B.A. (VEP06452A)
ZOOM SW C.B.A. (VEK3622)
SUB START/STOP SW C.B.A. (VEK3624)
START/STOP SW C.B.A. (VEK3623)
MAIN C.B.A. (VEP03480B)
14P REMOTE CONNECTOR C.B.A. (VEK3413)

Memo:


PROCESS STAGE
IC301 AN13588
IC302 AN13588
IRIS CONTROL
IRIS DRIVE
AGC DET
AUTO IRIS
BACK LIGHT CONTROL
TP310
TP302
TP301
PEDESTAL
FL302 4.76MHz TRAP
HIGH CUT
OB CLAMP
CLIP
PEDESTAL SET
GAMMA CORRECTION
AGC
ALC
S/H 1
S/H 2
WHITE BALANCE
BLUE WHITE BALANCE
RED WHITE BALANCE
R-Y
B-Y
MATRIX
R-Y COLOR PHASE
B-Y COLOR PHASE
VR324
VR303
IC304 AN21538
SUB AMP
CLAMP
BUFFER
FL309 1MHz L.P.F.
FL305 6MHz L.P.F.
FL307 1MHz L.P.F.
WHD CP2 C.BLK PRE.BLK
OB SET
TP307
IC310 VCR0199 (1H DELAY)
CLOCK DRIVER
SHIFT REGISTER
IC308 VCR0198 (1H DELAY)
1/3
CARRIER BALANCE (R)
CARRIER BALANCE (B)
FL303 1.5MHz L.P.F.
FL304 1.5MHz L.P.F.
R-Y GAIN CTL
B-Y GAIN CTL
IC307 μPD931386 (SYNC PULSE GENERATOR)
IC309 MC8181A
PHASE COMPARATOR
CLOCK PULSE GEN.
VCXO
TP308
FL310 0.2μSEC DELAY
ENCODER MODULE
Y LEVEL CTL
VR302
H.APERTURE
H.APERTURE LOW LEVEL CLIP
V.APERTURE MIX
APERTURE LOW .LUMI.CLIP
V.APERTURE CLIP
APERTURE LOW.LUMI.CLIP COMPARATOR
LOW.LUMI.CLIP COMPARATOR
FADE
SYNC MIX
OUTPUT AMP
MODULATION
BURST AMP
GAIN CONTROL
MIX
LOW LUMI CLIP
BURST MIX
IC901 AN2253FA
EVF STAGE
VIDEO IN
SYNC SEPARATOR
VERTICAL SYNC SEPARATOR
VERTICAL OSC
HORIZONTAL AFC
HORIZONTAL OSC
VERTICAL DRIVE
IC701 AN2510S
TP701
VR701
H-OSC
V-SIZE
VR702
Q701,Q702
FOCUS LENS
ZOOM LENS
IRIS
PIEZO ACTUATOR (BIMOLF)
CCD
MOTOR DRIVE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
IC604 NJM4558
GAIN
OFFSET
VR602
VR601
PIEZO DRIVE SIGNAL
IRIS POSITION
ZOOM 1
ZOOM 0
LED DRIVE PULSE
FOCUS 1
FOCUS 0
FOCUS MOTOR ⊖
FOCUS MOTOR ⊕
REFLECTION ALUMINIUM FOIL
(FOCUS POSITION)
DISTANCE
FOCUS 1 PIN 63
FOCUS 2 PIN 62
PRE VIDEO IN
FL601 3MHz L.P.F.
TP610
TP611
IC602 AN25838
GAIN CONTROL
GATE
HIGH BRIGHT DET
LUMINANCE DET
LOW LUMI NOISE CUT
FL602(VL) BPF 150KHz ~ 600KHz
FL605(VD) BPF 60KHz ~ 2.5MHz
FL603(VH) BPF 300KHz ~ 900KHz
FL604 BPF 0.9MHz ~ 2.5MHz 1.5MHz ~ 2.5MHz
IC605 AN6562
VL GATE
VL DET
VD GATE
VD DET
VH GATE
VH DET
VH/VSH GATE
VH/VSH DET
V.REF GEN
MODULATOR
T601
TP604
DE-MODULATOR
IC606 NJM3415
TP6005
TP602
IC601

POWER SUPPLY
SYSTEM CTL BLOCK


IC6004 (M54543L) (LOADING MOTOR DRIVE)
LOADING MOTOR DRIVE
+9V
IC6005 (MN4094S)
(DELAYED REC TIMING GENERATOR)
DATA
CLOCK
SF/SR
D REC (H)
UNREG
FROM POWER
P6004 1
P6004 2
LOADING MOTOR
EJECT STOP SUB LOAD PRE PAUSE PAUSE REV PLAY
MOVING CONTACT
P6009 4 POS(1)
P6009 3 POS(2)
P6009 2 POS(3)
P6009 1
MODE SELECT SWITCH
TR DOWN
TR UP
TRACKING
VI
VØ
CAPSTAN SPEED CONTROL
TO SERVO
REC(H)/PB(M)/MEM(L)
REV(H)/FWD(M)/STOP(L)
D. REC (H)
SP (H)
EE (H)
CYL. ON (H)
CTL. DUTY (L)
SR/SF
FROM POWER
X6001 (4.19KHz)
INST LED
PAUSE LED
ST-BY LED
POWER LED
REW LED
FF LED
PLAY LED
REC LED
LED DRIVE
OSC2
OSCI
XO
XI
P133
P132
P131
P13Ø
KEY SCAN OUTPUT
NON REC DATA
REC DATA
SERIAL CLOCK OUTPUT
SERIAL DATA IN / OUT PUT
TR UP
TR DOWN
TRACKING
SERIAL CLOCK
SERIAL DATA
POWER ON (H)
5V ON
CAM ON
IC 6001
(MN15361VYF)
REC (H)/PB(M)/MEM(L)
REV(H)/FWD(M)/STOP(L)
SP (H)
EE (H)/VV (L)
CYL ON (H)
CTL DUTYØ
VREF 2
SNS LED
RE
A.D.REC
V.D.REC
V DOWN
POWER SW
S PHOTO
T PHOTO
OUT/AWT/IN
DEW SENSOR IN
REEL PULSE IN
KEY SCAN INPUT
PØØ
PØ1
PØ2
PØ3
P1Ø
P11
P12
VCC
PLAY
SHUTTER SPEED CHANGE
SHUTT1
SHUTT2
VREF1
+B
Q6002
QR6025 (POWER ON (H) :ON)
+5V
EE (H)
N.REC.DATA
REC DATA
V.D.REC (L)
VMD2
VMD1
EXC.REC (L)
E.V.F.
NON REC DATA
REC DATA
E----F
"DEW"
SHUTTER SPEED CHANGE
TO VIDEO
IN(L)/AWT(M)/OUT(H)
A.D.REC (L)
FADE (L)
RE(L)
TO AUDIO
TO ROTARY ERASE
POWER ON (L)
CAM.P.ON (L)
TO POWER
POWER OFF (L)
FROM POWER
POWER SAVE (H)
TO POWER
QR6004
UNREG
Q6001
(POWER SW OFF : ON)
QR6003
QR6006

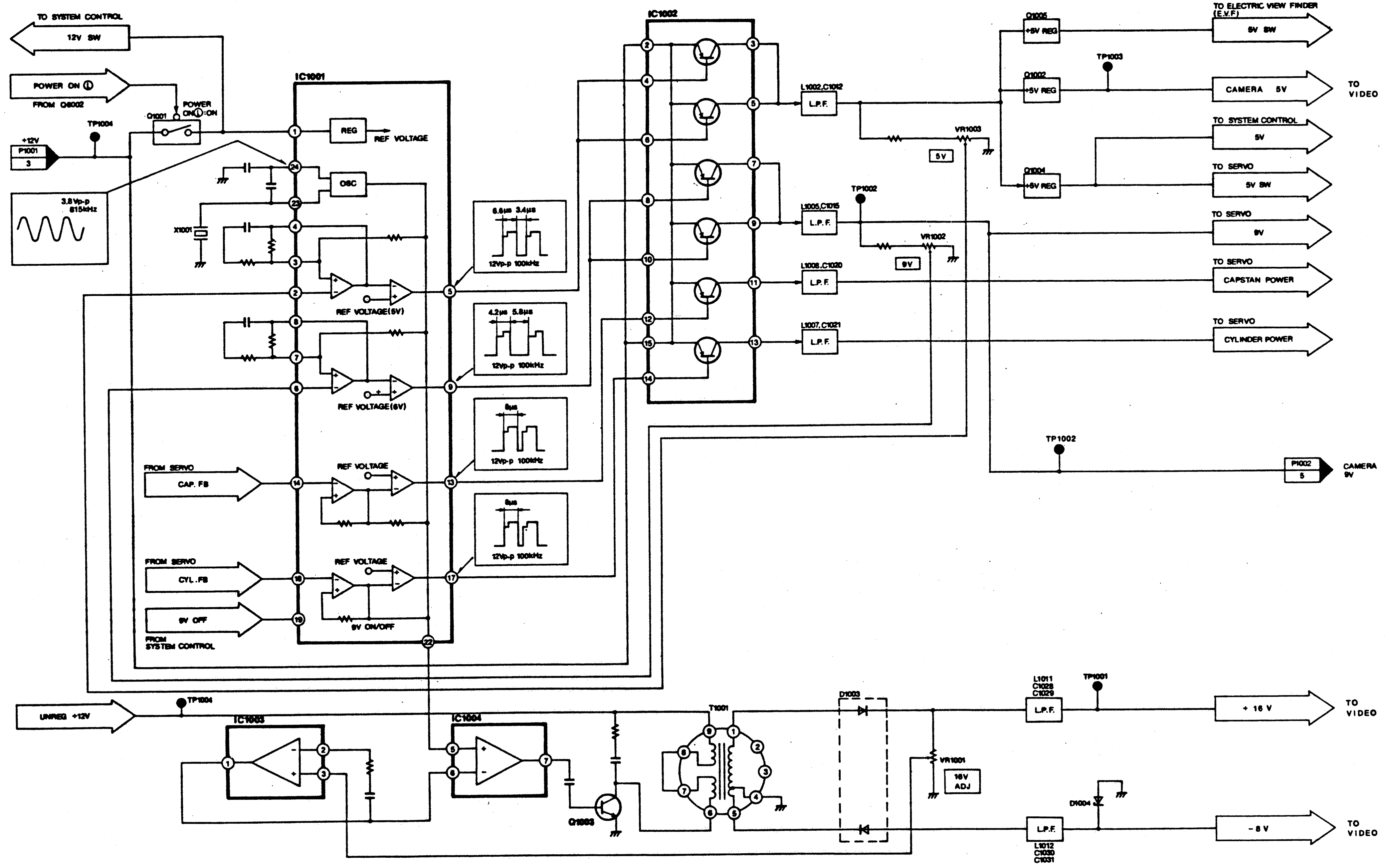
DIRECTION		LOAD	UNLOAD	BRAKE
IN	IC6004 – 4	L	H	H
	IC6004 – 6	H	L	H
OUT	IC6004 – 7	L	H	L
	IC6004 – 3	H	L	L

LOADING	UNLOADING
L	H
H	L

FF/REW	PLAY	CUE/REV	
H	L	H	V1
L	H	L	VØ

V1 \ VØ	L	H
L	STILL	NORMAL
H	UNLOAD	FF / REW CUE / REV

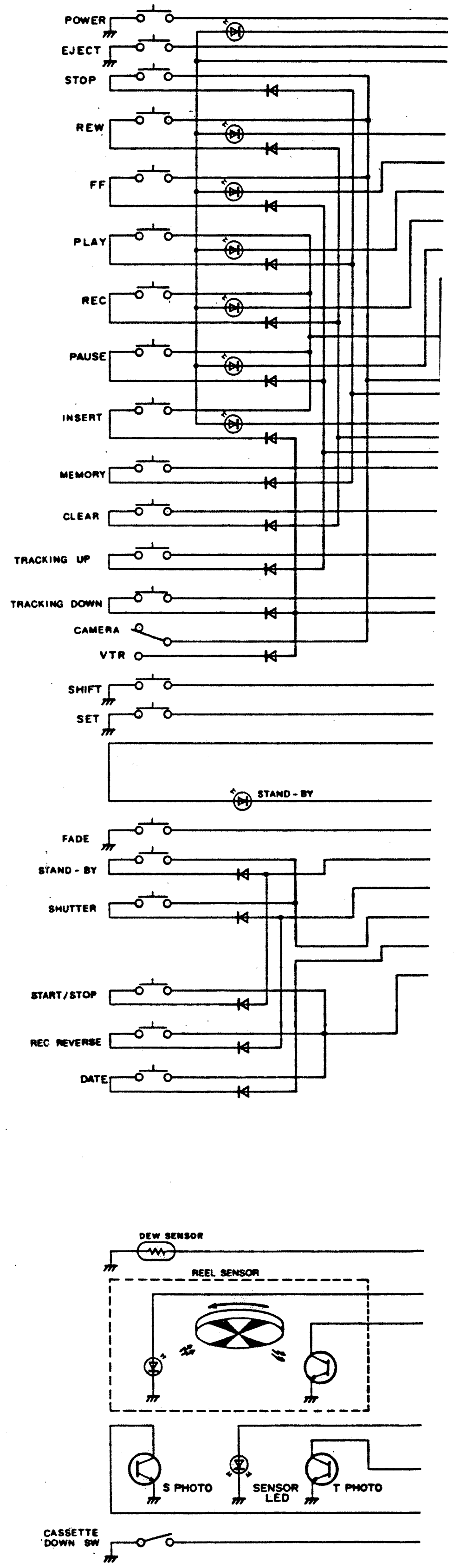
POWER SUPPLY BLOCK DIAGRAM


TO SYSTEM CONTROL
12V SW
POWER ON Ⓛ
FROM Q6002
POWER ON Ⓛ : ON
Q1001
TP1004
+12V
P1001
3
3.8 Vp-p
815kHz
IC1001
REG
REF VOLTAGE
OSC
X1001
REF VOLTAGE(5V)
REF VOLTAGE(9V)
REF VOLTAGE
6.6μs 3.4μs
12Vp-p 100kHz
4.2μs 5.8μs
12Vp-p 100kHz
8μs
12Vp-p 100kHz
8μs
12Vp-p 100kHz
FROM SERVO
CAP. FB
FROM SERVO
CYL. FB
9V OFF
FROM SYSTEM CONTROL
9V ON/OFF
IC1002
L1002,C1012
L.P.F.
L1005,C1015
L.P.F.
L1006,C1020
L.P.F.
L1007,C1021
L.P.F.
VR1003
5V
TP1002
VR1002
9V
Q1005
+5V REG
Q1002
+5V REG
Q1004
+5V REG
TP1003
TO ELECTRIC VIEW FINDER (E.V.F)
5V SW
CAMERA 5V
TO VIDEO
TO SYSTEM CONTROL
5V
TO SERVO
5V SW
TO SERVO
9V
TO SERVO
CAPSTAN POWER
TO SERVO
CYLINDER POWER
TP1002
P1002
5
CAMERA 9V
UNREG +12V
TP1004
IC1003
IC1004
Q1003
T1001
D1003
VR1001
16V ADJ
L1011
C1028
C1029
TP1001
L.P.F.
+ 16 V
TO VIDEO
D1004
L.P.F.
L1012
C1030
C1031
- 8 V
TO VIDEO

MICROCOMPUTER I/O CHART
(IC6001: MN15361VYF)

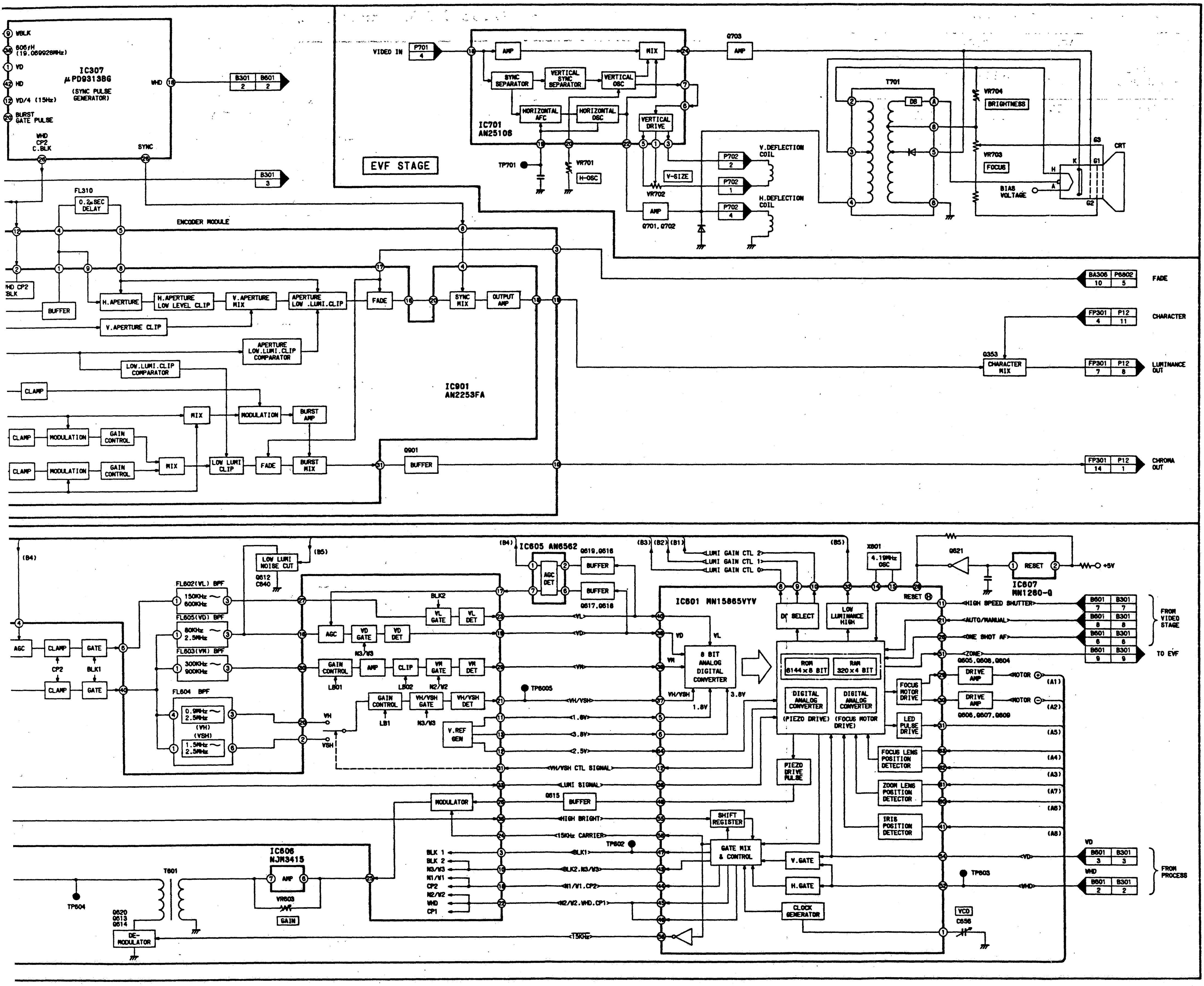
PIN	I/O	NAME/OPERATION
1	OUT	LOAD Ⓗ
2	OUT	UNLOAD Ⓗ
3	IN	HQ
4	OUT	REC DATA
5	OUT	NON REC DATA
6	OUT	SCAN OUT
7	OUT	
8	OUT	ROS 2
9	IN	ROS 1
10	—	VSS
11	—	NOT USED
12	—	NOT USED
13	OUT	SCAN OUT
14	IN	OSC 1
15	OUT	OSC 2
16	OUT	SCAN OUT
17	OUT	REC LED Ⓛ
18	OUT	PLAY LED Ⓛ
19	OUT	FF LED Ⓛ
20	OUT	REW LED Ⓛ
21	OUT	POWER LED Ⓛ
22	—	NOT USED
23	—	NOT USED
24	OUT	STAND-BY LED Ⓛ
25	OUT	PAUSE LED Ⓛ
26	OUT	INSERT LED Ⓛ
27	—	NOT USED
28	—	NOT USED
29	IN	IRQ
30	OUT	SERIAL CLOCK OUT
31	IN/OUT	SERILA DATA IN/OUT
32	IN	RESET Ⓛ
33	OUT	TRACKING DOWN
34	OUT	TRACKING UP
35	OUT	SERIAL CLOCK
36	OUT	SERIAL DATA
37	OUT	POWER ON Ⓗ
38	OUT	POWER SAVE Ⓗ
39	OUT	CAMERA POWER ON Ⓗ
40	OUT	COMMON
41	—	NOT USED
42	—	NOT USED
43	IN	OUT Ⓗ/AWT Ⓜ/IN Ⓛ
44	IN	DEW SENSOR Ⓛ
45	IN	SW 1
46	IN	REEL SENSOR
47	IN	SCAN IN
48	IN	
49	IN	
50	IN	
51	IN	
52	IN	
53	—	VDD
54	IN	SCAN IN
55	OUT	CLOCK OUT
56	OUT	EE Ⓗ/VV Ⓛ
57	OUT	PLAY Ⓛ
58	OUT	AUDIO EE Ⓗ
59	OUT	AUDIO MUTE Ⓗ
60	OUT	SHUTTER 1
61	OUT	SHUTTER 2
62	OUT	TARRY Ⓛ
63	IN	V REF 1
64	—	NOT USED
65	—	NOT USED
66	IN	TAKE UP PHOTO
67	IN	SUPPLY PHOTO
68	IN	POWER SW ON Ⓛ
69	IN	POWER OFF Ⓛ
70	OUT	VIDEO DELAYED REC Ⓛ
71	OUT	AUDIO DELAYED REC Ⓛ
72	OUT	ROTARY ERASE Ⓛ
73	OUT	SENSOR LED
74	IN	V REF 2
75	OUT	CONTROL DUTY Ⓛ
76	OUT	CYLINDER ON Ⓗ
77	OUT	FULL ERASE Ⓗ
78	OUT	SP Ⓗ
79	OUT	REV Ⓗ/FWD Ⓜ/STOP Ⓛ
80	OUT	REC Ⓗ/P.B Ⓜ/MEMORY Ⓛ
81	OUT	V 0
82	OUT	V 1
83	—	NOT USED
84	—	NOT USED

SYSTEM CONTROL E

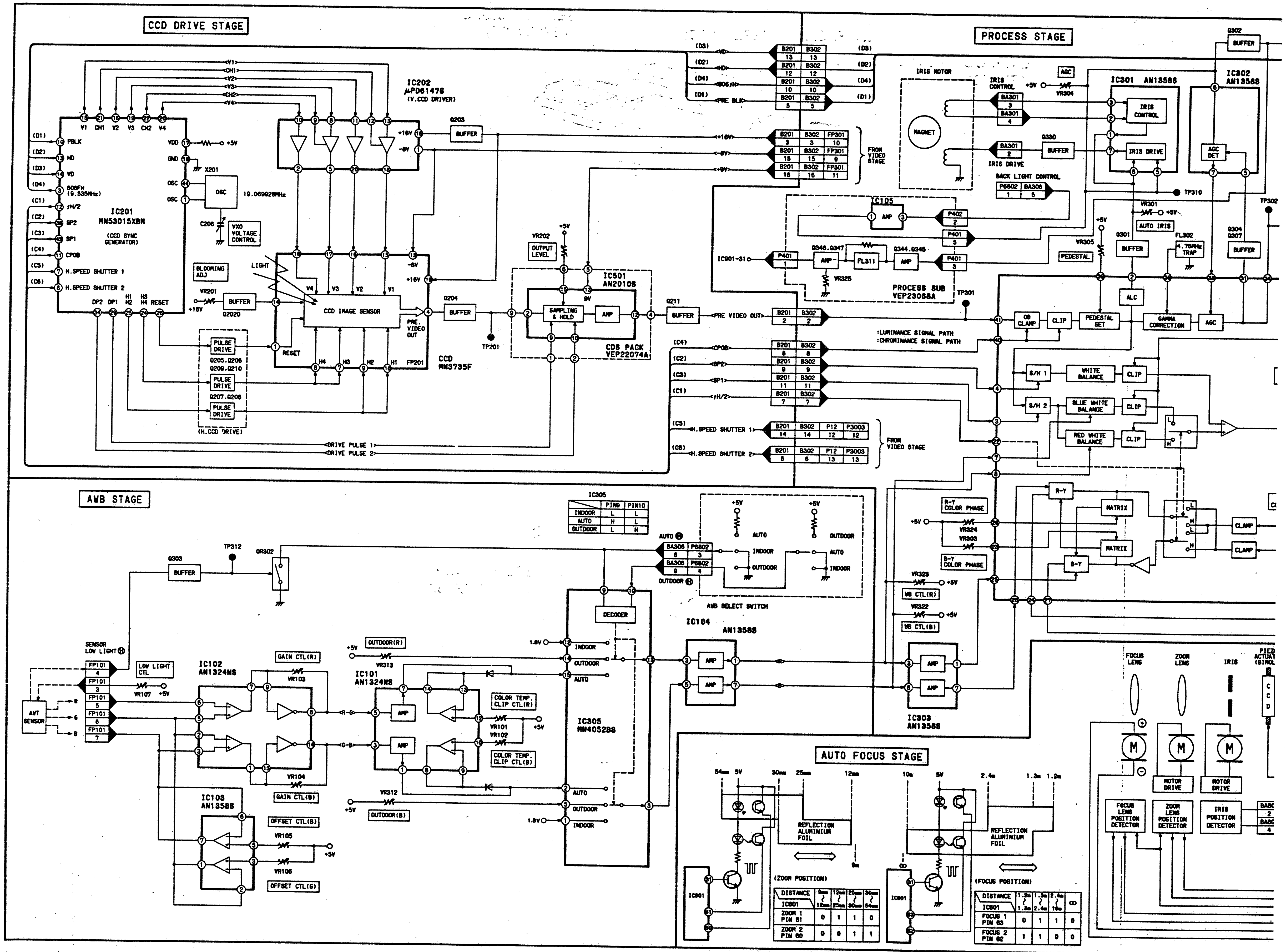

POWER
EJECT
STOP
REW
FF
PLAY
REC
PAUSE
INSERT
MEMORY
CLEAR
TRACKING UP
TRACKING DOWN
CAMERA
VTR
SHIFT
SET
STAND - BY
FADE
STAND - BY
SHUTTER
START/STOP
REC REVERSE
DATE
DEW SENSOR
REEL SENSOR
S PHOTO
SENSOR LED
T PHOTO
CASSETTE DOWN SW

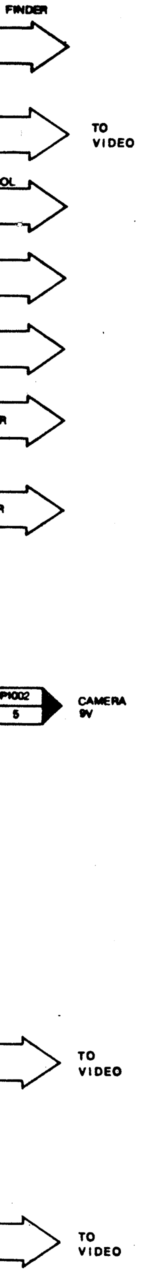
CAMERA STAGE BLOCK

CAMERA STAGE BLOCK


IC307
μPD9313BG
(SYNC PULSE GENERATOR)
WBLK
606fH (19.069928MHz)
VD
HD
VD/4 (15Hz)
BURST GATE PULSE
WHD
CP2
C.BLK
SYNC
B301 B601
B301
FL310
0.2μSEC DELAY
ENCODER MODULE
WHD CP2 C.BLK
BUFFER
H.APERTURE
H.APERTURE LOW LEVEL CLIP
V.APERTURE MIX
APERTURE LOW .LUMI.CLIP
FADE
SYNC MIX
OUTPUT AMP
V.APERTURE CLIP
APERTURE LOW.LUMI.CLIP COMPARATOR
LOW.LUMI.CLIP COMPARATOR
CLAMP
MIX
MODULATION
BURST AMP
GAIN CONTROL
LOW LUMI CLIP
BURST MIX
IC901
AN2253FA
Q901
EVF STAGE
VIDEO IN
P701
AMP
SYNC SEPARATOR
VERTICAL SYNC SEPARATOR
VERTICAL OSC
HORIZONTAL AFC
HORIZONTAL OSC
VERTICAL DRIVE
IC701
AN2510S
TP701
VR701
H-OSC
V-SIZE
VR702
Q701, Q702
P702
V.DEFLECTION COIL
H.DEFLECTION COIL
Q703
T701
D8
VR704
BRIGHTNESS
VR703
FOCUS
BIAS VOLTAGE
CRT
G3
G1
G2
H
K
A
BA306 P6802
FADE
FP301 P12
CHARACTER
Q353
CHARACTER MIX
LUMINANCE OUT
CHROMA OUT
(B4)
(B5)
LOW LUMI NOISE CUT
Q612
C640
FL602(VL) BPF
150KHz ~ 600KHz
FL605(VD) BPF
80KHz ~ 2.5MHz
FL603(VH) BPF
300KHz ~ 900KHz
FL604 BPF
0.9MHz ~ 2.5MHz
(VH)
(VSH)
1.5MHz ~ 2.5MHz
AGC
CLAMP
GATE
CP2
BLK1
BLK2
VL GATE
VL DET
VD GATE
VD DET
N3/W3
GAIN CONTROL
CLIP
VH GATE
VH DET
LB01
LB02
N2/W2
LB1
VH/VSH GATE
VH/VSH DET
VH
VSH
V.REF GEN
TP6005
IC605 AN6562
AGC DET
Q619, Q616
Q617, Q618
BUFFER
<VL>
<VD>
<VH>
<VH/VSH>
<1.8V>
<3.8V>
<2.5V>
<VH/VSH CTL SIGNAL>
<LUMI SIGNAL>
MODULATOR
Q615
<HIGH BRIGHT>
<15KHz CARRIER>
TP602
BLK 1
BLK 2
N3/W3
N1/W1
CP2
N2/W2
WHD
CP1
<BLK1>
<BLK2.N3/W3>
<N1/W1.CP2>
<N2/W2.WHD.CP1>
<15KHz>
IC606
NJM3415
VR603
GAIN
T601
TP604
Q620
Q613
Q614
DE-MODULATOR
(B3) (B2) (B1)
<LUMI GAIN CTL 2>
<LUMI GAIN CTL 1>
<LUMI GAIN CTL 0>
X601
4.19MHz OSC
Q621
RESET
+5V
IC607
MN1280-Q
IC601 MN15865VYV
RESET
DC SELECT
LOW LUMINANCE HIGH
8 BIT ANALOG DIGITAL CONVERTER
VD
VL
VH
VH/VSH
1.8V
3.8V
ROM 6144×8 BIT
RAM 320×4 BIT
DIGITAL ANALOG CONVERTER
(PIEZO DRIVE)
(FOCUS MOTOR DRIVE)
PIEZO DRIVE PULSE
SHIFT REGISTER
GATE MIX & CONTROL
V.GATE
H.GATE
CLOCK GENERATOR
FOCUS MOTOR DRIVE
LED PULSE DRIVE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
<HIGH SPEED SHUTTER>
<AUTO/MANUAL>
<ONE SHOT AF>
<ZONE>
Q605, Q608, Q604
DRIVE AMP
<MOTOR ⊕>
<MOTOR ⊖>
Q606, Q607, Q609
(A1)
(A2)
(A5)
(A4)
(A3)
(A7)
(A6)
(A8)
B601 B301
FROM VIDEO STAGE
TO EVF
VD
<VD>
WHD
<WHD>
TP603
FROM PROCESS
VCO
C656

CAMERA STAGE BLOCK DIAGRAM

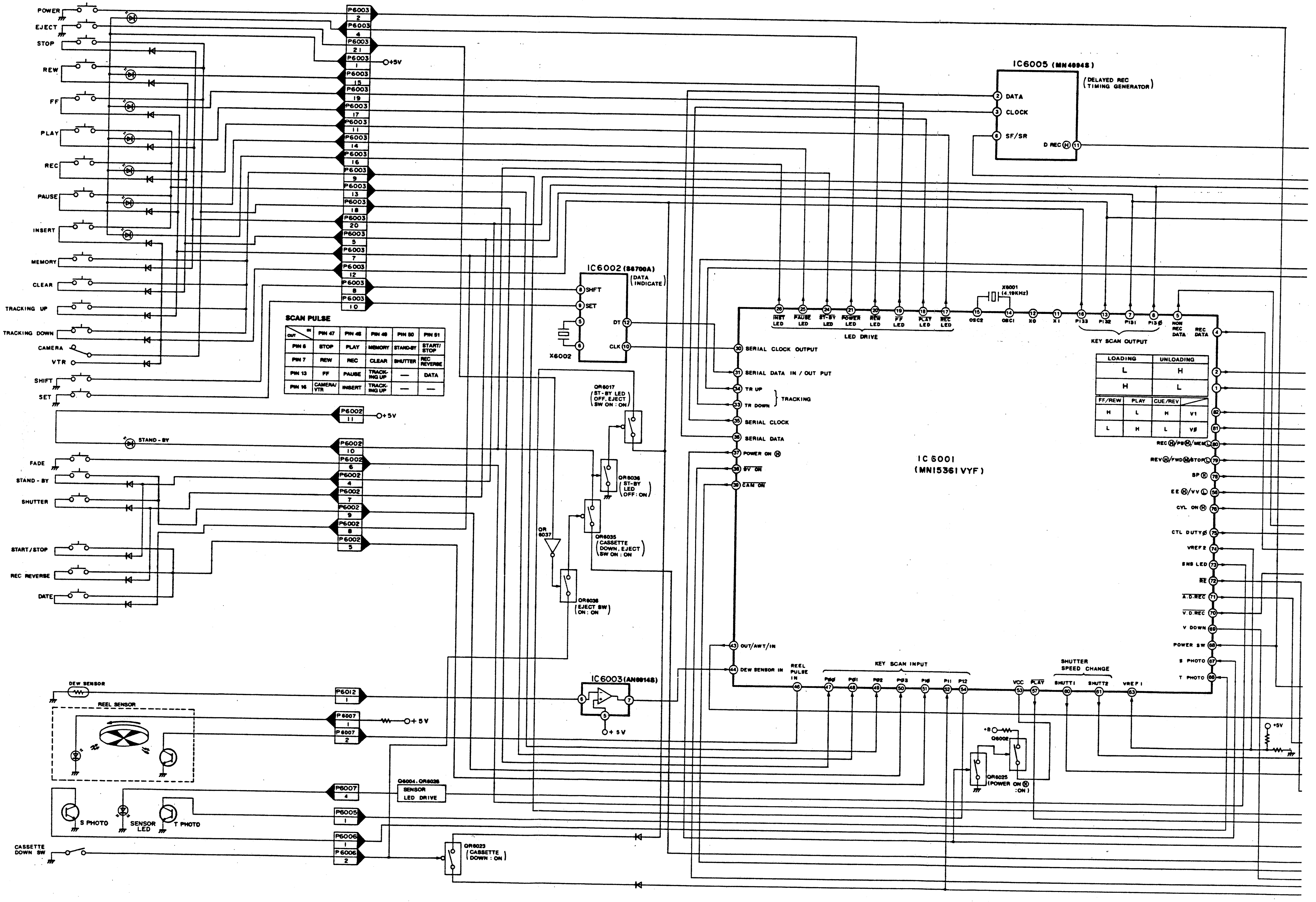

CCD DRIVE STAGE
IC202
μPD61476
(V.CCD DRIVER)
IC201
MN53015XBM
(CCD SYNC GENERATOR)
19.069928MHz
OSC
VXO VOLTAGE CONTROL
BLOOMING ADJ
LIGHT
BUFFER
CCD IMAGE SENSOR
CCD
MN3735F
PULSE DRIVE
(H.CCD DRIVE)
Q203
Q204
TP201
OUTPUT LEVEL
VR202
IC501
AN2010S
SAMPLING & HOLD
AMP
CDS PACK
VEP22074A
Q211
BUFFER
PRE VIDEO OUT
DRIVE PULSE 1
DRIVE PULSE 2
H.SPEED SHUTTER 1
H.SPEED SHUTTER 2
FROM VIDEO STAGE
PROCESS STAGE
IRIS MOTOR
MAGNET
IRIS CONTROL
IRIS DRIVE
BACK LIGHT CONTROL
IC301 AN1358S
IC302 AN1358S
AGC DET
Q302 BUFFER
IC105
PROCESS SUB
VEP23068A
TP301
TP310
TP302
AUTO IRIS
PEDESTAL
FL302
4.76MHz TRAP
:LUMINANCE SIGNAL PATH
:CHROMINANCE SIGNAL PATH
OB CLAMP
CLIP
PEDESTAL SET
GAMMA CORRECTION
AGC
ALC
S/H 1
S/H 2
WHITE BALANCE
BLUE WHITE BALANCE
RED WHITE BALANCE
R-Y
B-Y
MATRIX
CLAMP
R-Y COLOR PHASE
B-Y COLOR PHASE
WB CTL(R)
WB CTL(B)
AWB STAGE
AWT SENSOR
SENSOR LOW LIGHT
LOW LIGHT CTL
IC102
AN1324NS
IC101
AN1324NS
IC103
AN1358S
GAIN CTL(R)
GAIN CTL(B)
OFFSET CTL(B)
OFFSET CTL(G)
COLOR TEMP. CLIP CTL(R)
COLOR TEMP. CLIP CTL(B)
OUTDOOR(R)
OUTDOOR(B)
Q303 BUFFER
TP312
QR302
DECODER
IC305
MN4052BS
INDOOR
OUTDOOR
AUTO
IC104
AN1358S
AWB SELECT SWITCH
IC303
AN1358S
AUTO FOCUS STAGE
REFLECTION ALUMINIUM FOIL
(ZOOM POSITION)
(FOCUS POSITION)
FOCUS LENS
ZOOM LENS
IRIS
MOTOR DRIVE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
IC801


FINDER
TO
VIDEO
OL
R
R
P1002
5
CAMERA
9V
TO
VIDEO
TO
VIDEO

MICROCOMPUTER I/O CHART
(IC6001: MN15361VYF)

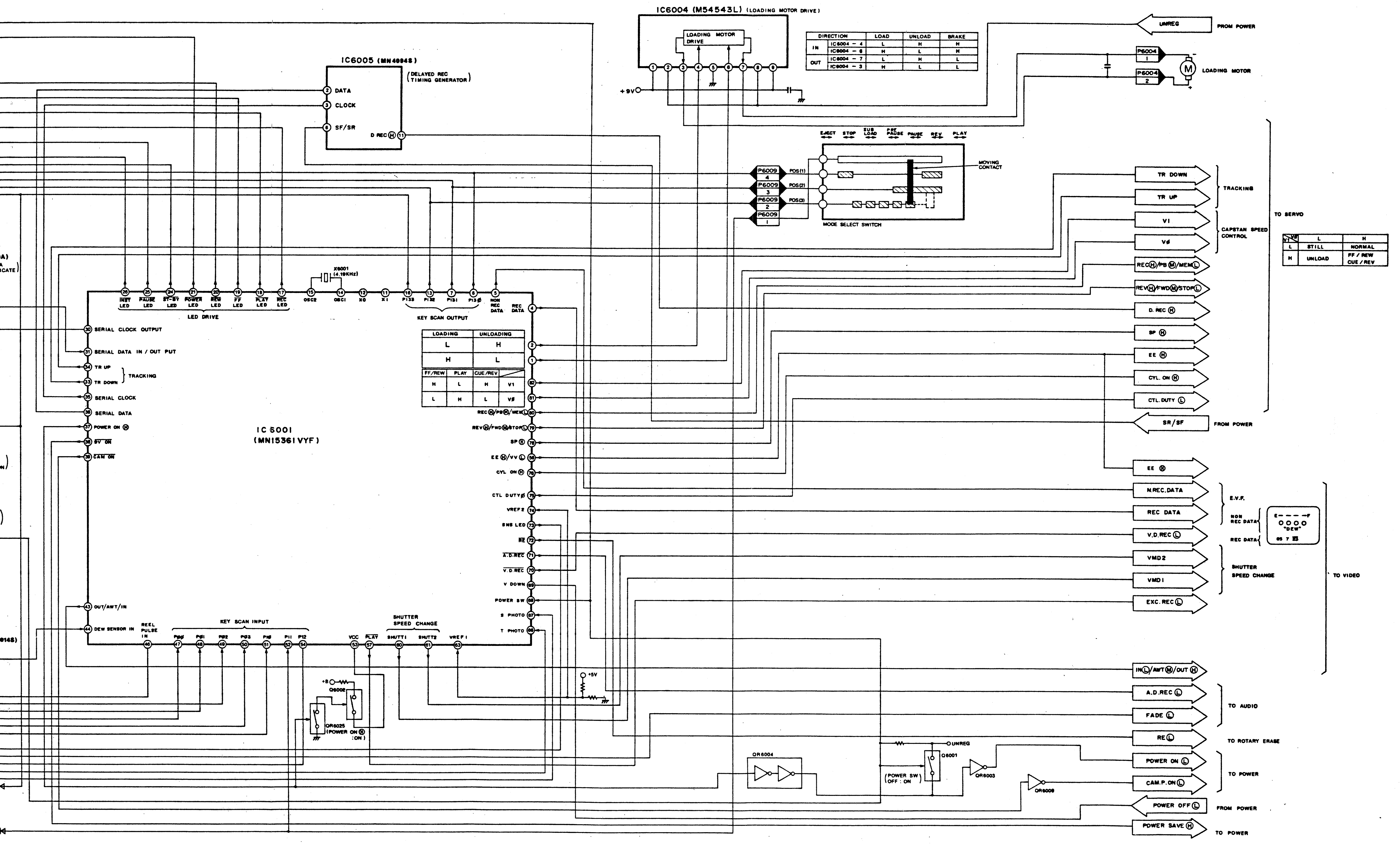
PIN	I/O	NAME/OPERATION
1	OUT	LOAD Ⓗ
2	OUT	UNLOAD Ⓗ
3	IN	HQ
4	OUT	REC DATA
5	OUT	NON REC DATA
6	OUT	SCAN OUT
7	OUT	
8	OUT	ROS 2
9	IN	ROS 1
10	—	VSS
11	—	NOT USED
12	—	NOT USED
13	OUT	SCAN OUT
14	IN	OSC 1
15	OUT	OSC 2
16	OUT	SCAN OUT
17	OUT	REC LED Ⓛ
18	OUT	PLAY LED Ⓛ
19	OUT	FF LED Ⓛ
20	OUT	REW LED Ⓛ
21	OUT	POWER LED Ⓛ
22	—	NOT USED
23	—	NOT USED
24	OUT	STAND-BY LED Ⓛ
25	OUT	PAUSE LED Ⓛ
26	OUT	INSERT LED Ⓛ
27	—	NOT USED
28	—	NOT USED
29	IN	IRQ
30	OUT	SERIAL CLOCK OUT
31	IN/OUT	SERILA DATA IN/OUT
32	IN	RESET Ⓛ
33	OUT	TRACKING DOWN
34	OUT	TRACKING UP
35	OUT	SERIAL CLOCK
36	OUT	SERIAL DATA
37	OUT	POWER ON Ⓗ
38	OUT	POWER SAVE Ⓗ
39	OUT	CAMERA POWER ON Ⓗ
40	OUT	COMMON
41	—	NOT USED
42	—	NOT USED
43	IN	OUT Ⓗ/AWT Ⓜ/IN Ⓛ
44	IN	DEW SENSOR Ⓛ
45	IN	SW 1
46	IN	REEL SENSOR
47	IN	SCAN IN
48	IN	
49	IN	
50	IN	
51	IN	
52	IN	
53	—	VDD
54	IN	SCAN IN
55	OUT	CLOCK OUT
56	OUT	EE Ⓗ/VV Ⓛ
57	OUT	PLAY Ⓛ
58	OUT	AUDIO EE Ⓗ
59	OUT	AUDIO MUTE Ⓗ
60	OUT	SHUTTER 1
61	OUT	SHUTTER 2
62	OUT	TARRY Ⓛ
63	IN	V REF 1
64	—	NOT USED
65	—	NOT USED
66	IN	TAKE UP PHOTO
67	IN	SUPPLY PHOTO
68	IN	POWER SW ON Ⓛ
69	IN	POWER OFF Ⓛ
70	OUT	VIDEO DELAYED REC Ⓛ
71	OUT	AUDIO DELAYED REC Ⓛ
72	OUT	ROTARY ERASE Ⓛ
73	OUT	SENSOR LED
74	IN	V REF 2
75	OUT	CONTROL DUTY Ⓛ
76	OUT	CYLINDER ON Ⓗ
77	OUT	FULL ERASE Ⓗ
78	OUT	SP Ⓗ
79	OUT	REV Ⓗ/FWD Ⓜ/STOP Ⓛ
80	OUT	REC Ⓗ/P.B Ⓜ/MEMORY Ⓛ
81	OUT	V 0
82	OUT	V 1
83	—	NOT USED
84	—	NOT USED

SYSTEM CONTROL BLOCK DIAGRAM

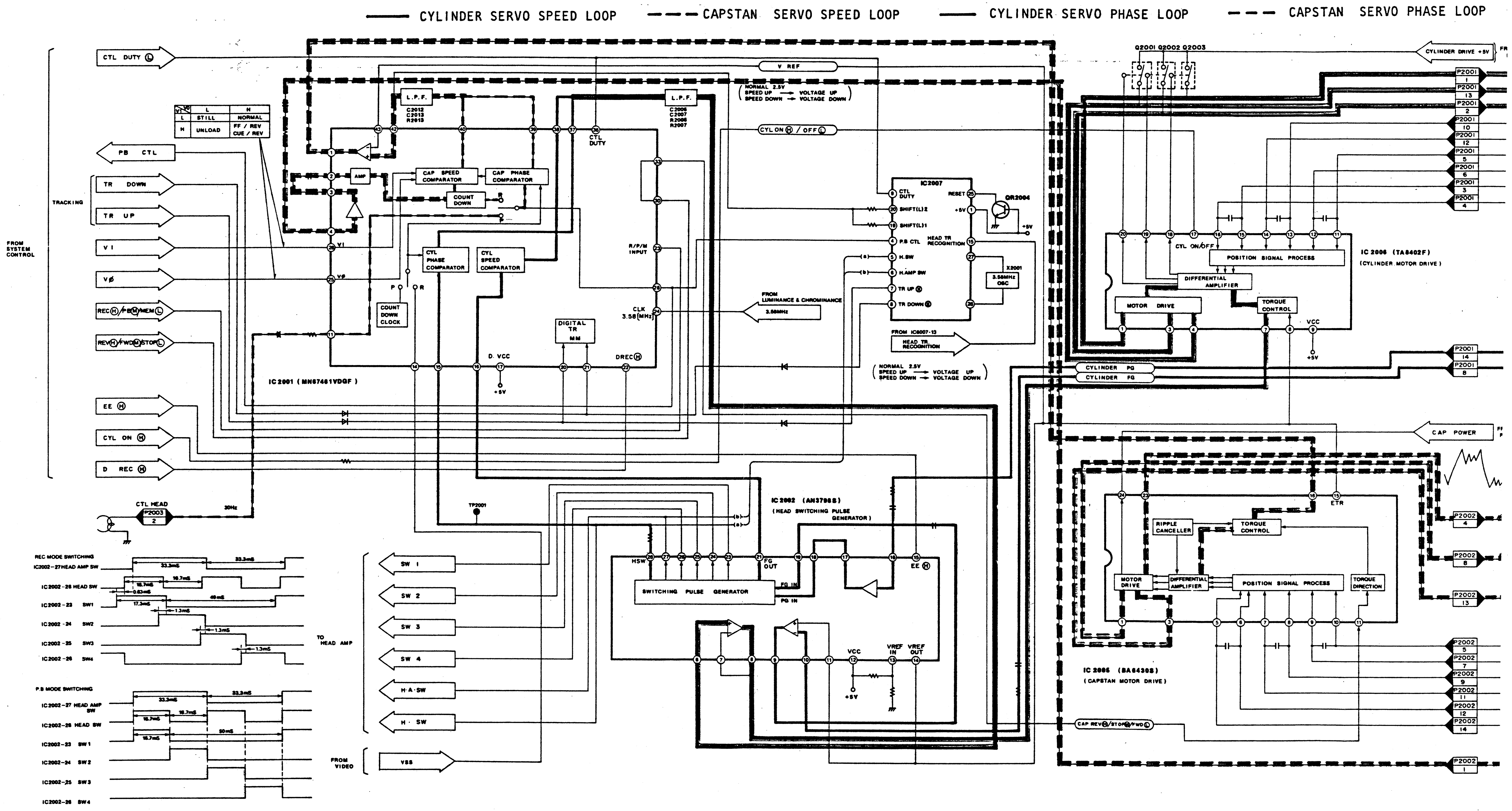

POWER
EJECT
STOP
REW
FF
PLAY
REC
PAUSE
INSERT
MEMORY
CLEAR
TRACKING UP
TRACKING DOWN
CAMERA
VTR
SHIFT
SET
P6003
+5V
P6002
STAND-BY
FADE
STAND-BY
SHUTTER
START/STOP
REC REVERSE
DATE
IC6005 (MN4094S)
(DELAYED REC TIMING GENERATOR)
DATA
CLOCK
SF/SR
D REC Ⓗ
IC6002 (S8700A)
(DATA INDICATE)
SHFT
SET
DT
CLK
X6002
X6001 (4.19KHz)
QR6017 (ST-BY LED OFF, EJECT SW ON : ON)
QR6036 (ST-BY LED OFF : ON)
QR6035 (CASSETTE DOWN, EJECT SW ON : ON)
QR 6037
QR6036 (EJECT SW ON : ON)
IC6003 (AN6914S)
+5V
INST LED
PAUSE LED
ST-BY LED
POWER LED
REW LED
FF LED
PLAY LED
REC LED
LED DRIVE
OSC2
OSCI
XO
XI
PI33
PI32
PI31
PI30
NON REC DATA
REC DATA
KEY SCAN OUTPUT
SERIAL CLOCK OUTPUT
SERIAL DATA IN / OUT PUT
TR UP
TR DOWN
TRACKING
SERIAL CLOCK
SERIAL DATA
POWER ON Ⓗ
9V ON
CAM ON
IC 6001 (MN15361VYF)
OUT/AWT/IN
DEW SENSOR IN
REEL PULSE IN
KEY SCAN INPUT
P00
P01
P02
P03
P10
P11
P12
VCC
PLAY
SHUTTER SPEED CHANGE
SHUTT1
SHUTT2
VREF1
LOADING
UNLOADING
L
H
H
L
FF/REW
PLAY
CUE/REV
H
L
H
V1
L
H
L
V0
REC Ⓗ/PB Ⓜ/MEM Ⓛ
REV Ⓗ/FWD Ⓜ/STOP Ⓛ
SP Ⓗ
EE Ⓗ/VV Ⓛ
CYL ON Ⓗ
CTL DUTY
VREF2
SNS LED
RE
A.D.REC
V.D.REC
V DOWN
POWER SW
S PHOTO
T PHOTO
+8
Q6002
QR6025 (POWER ON Ⓗ :ON)
+5V
DEW SENSOR
P6012
REEL SENSOR
P6007
+5V
Q6004, QR6026
SENSOR LED DRIVE
P6005
S PHOTO
SENSOR LED
T PHOTO
P6006
CASSETTE DOWN SW
QR6023 (CASSETTE DOWN : ON)

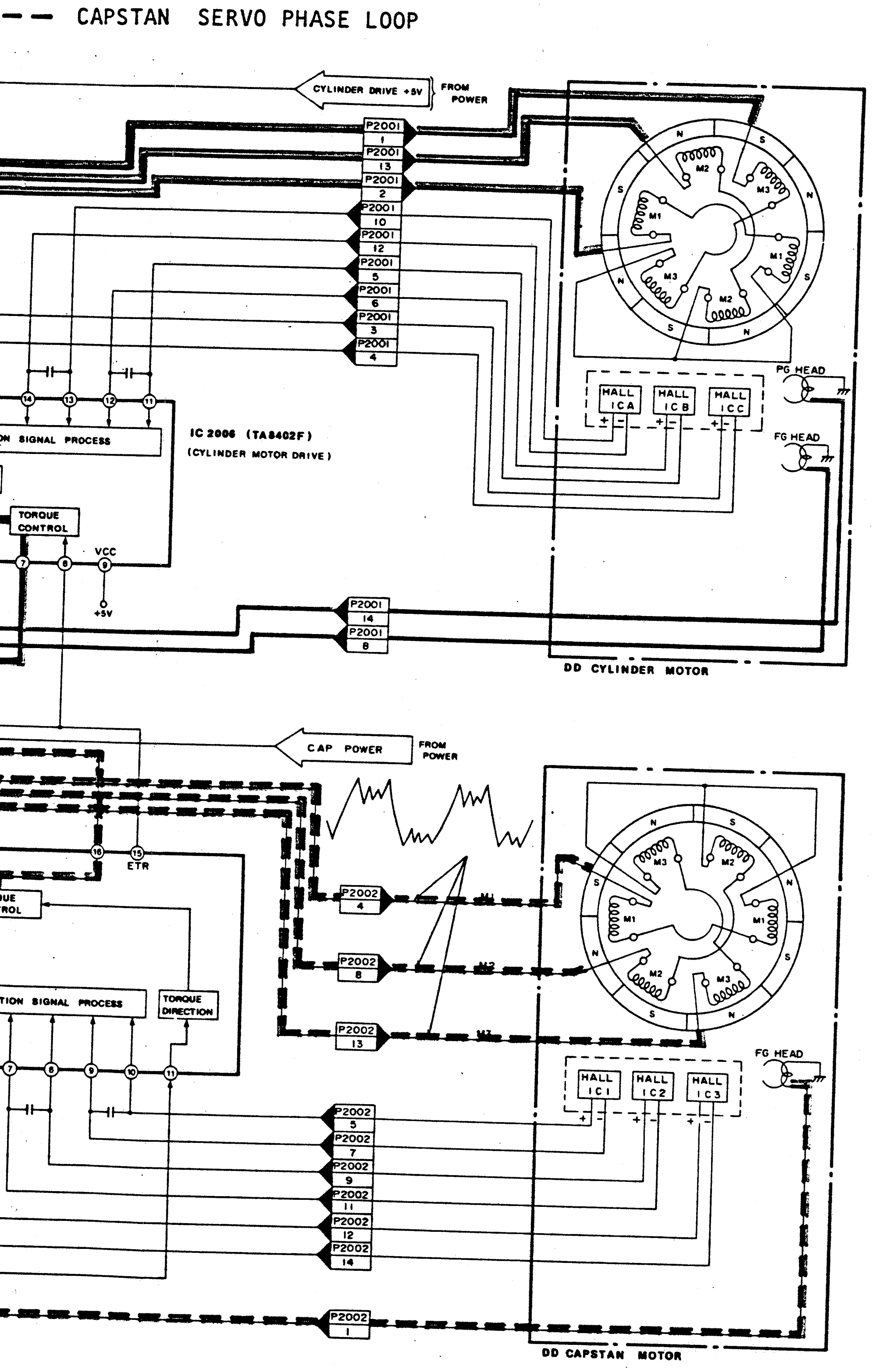
SCAN PULSE

OUT \ IN	PIN 47	PIN 48	PIN 49	PIN 50	PIN 51
PIN 6	STOP	PLAY	MEMORY	STAND-BY	START/ STOP
PIN 7	REW	REC	CLEAR	SHUTTER	REC REVERSE
PIN 13	FF	PAUSE	TRACK-ING UP	—	DATA
PIN 16	CAMERA/ VTR	INSERT	TRACK-ING UP	—	—

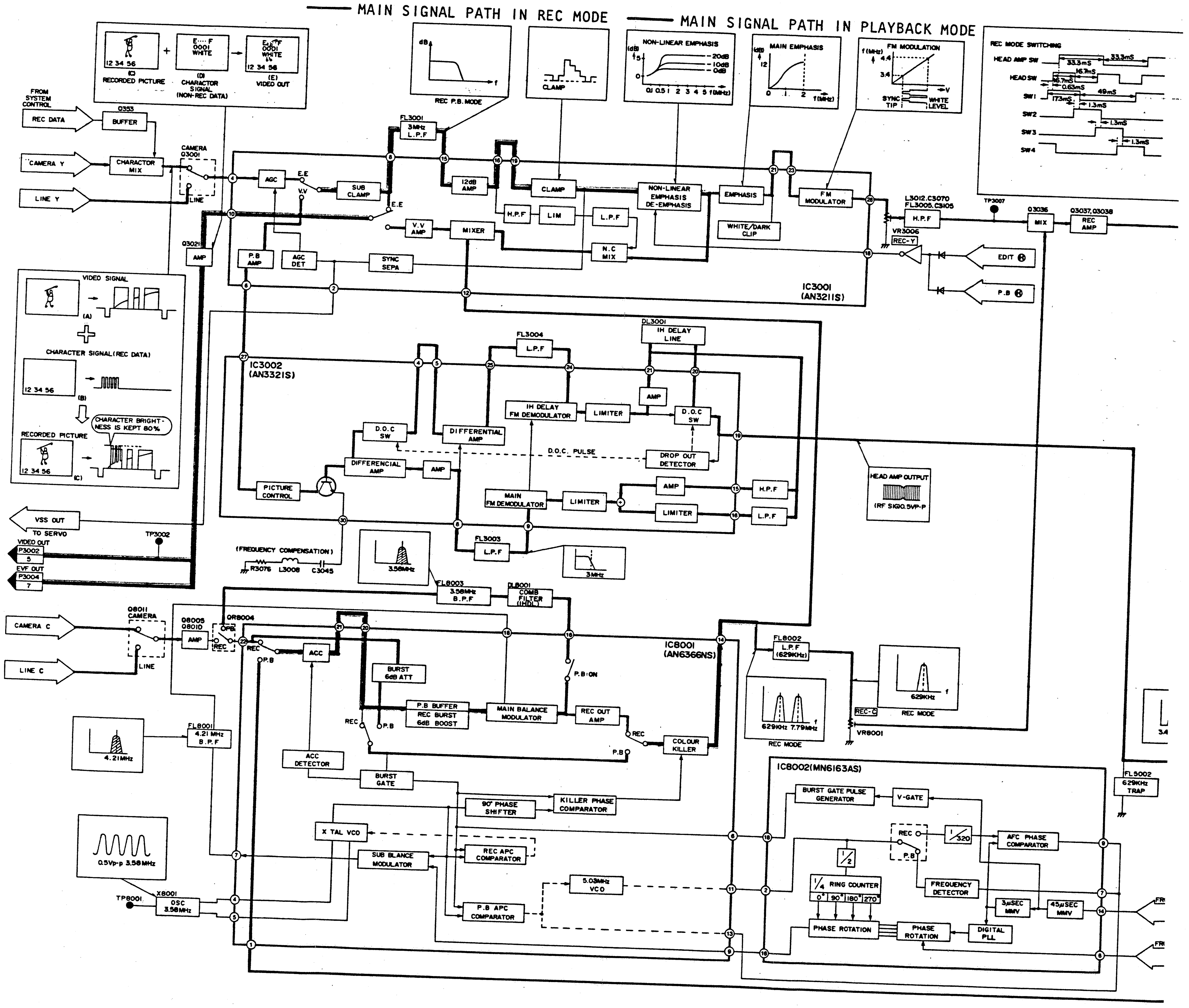

IC6004 (M54543L) (LOADING MOTOR DRIVE)
LOADING MOTOR DRIVE
+9V
DIRECTION
LOAD
UNLOAD
BRAKE
IN
IC6004 − 4
IC6004 − 6
OUT
IC6004 − 7
IC6004 − 3
L
H
UNREG
FROM POWER
P6004 1
P6004 2
M
LOADING MOTOR
IC6005 (MN4094S)
(DELAYED REC TIMING GENERATOR)
DATA
CLOCK
SF/SR
D REC Ⓗ
EJECT
STOP
SUB LOAD
PRE PAUSE
PAUSE
REV
PLAY
MOVING CONTACT
MODE SELECT SWITCH
P6009 4
P6009 3
P6009 2
P6009 1
POS(1)
POS(2)
POS(3)
TR DOWN
TR UP
TRACKING
V1
V∅
CAPSTAN SPEED CONTROL
TO SERVO
V1 V∅
STILL
NORMAL
UNLOAD
FF / REW CUE / REV
REC Ⓗ/PB Ⓜ/MEM Ⓛ
REV Ⓗ/FWD Ⓜ/STOP Ⓛ
D. REC Ⓗ
SP Ⓗ
EE Ⓗ
CYL. ON Ⓗ
CTL. DUTY Ⓛ
SR/SF
FROM POWER
EE Ⓗ
N.REC.DATA
REC DATA
E.V.F.
NON REC DATA
REC DATA
E− − − −F
"DEW"
65 7 23
V.D.REC Ⓛ
VMD2
VMD1
SHUTTER SPEED CHANGE
EXC.REC Ⓛ
TO VIDEO
IN Ⓛ/AWT Ⓜ/OUT Ⓗ
A.D.REC Ⓛ
FADE Ⓛ
TO AUDIO
RE Ⓛ
TO ROTARY ERASE
POWER ON Ⓛ
CAM.P.ON Ⓛ
TO POWER
POWER OFF Ⓛ
FROM POWER
POWER SAVE Ⓗ
TO POWER
X6001 (4.19KHz)
INST LED
PAUSE LED
ST-BY LED
POWER LED
REW LED
FF LED
PLAY LED
REC LED
LED DRIVE
OSC2
OSC1
X0
X1
P133
P132
P131
P13∅
KEY SCAN OUTPUT
NON REC DATA
REC DATA
SERIAL CLOCK OUTPUT
SERIAL DATA IN / OUT PUT
TR UP
TR DOWN
TRACKING
SERIAL CLOCK
SERIAL DATA
POWER ON Ⓗ
9V ON
CAM ON
IC 6001 (MN15361VYF)
LOADING
UNLOADING
FF/REW
PLAY
CUE/REV
V1
V∅
REC Ⓗ/PB Ⓜ/MEM Ⓛ
REV Ⓗ/FWD Ⓜ/STOP Ⓛ
SP Ⓗ
EE Ⓗ/VV Ⓛ
CYL ON Ⓗ
CTL DUTY∅
VREF2
SNS LED
RE
A.D.REC
V.D.REC
V DOWN
POWER SW
S PHOTO
T PHOTO
OUT/AWT/IN
DEW SENSOR IN
REEL PULSE IN
KEY SCAN INPUT
P0∅
P01
P02
P03
P1∅
P11
P12
VCC
PLAY
SHUTTER SPEED CHANGE
SHUTT1
SHUTT2
VREF1
+B
Q6002
QR6025 (POWER ON Ⓗ :ON)
+5V
QR6004
UNREG
Q6001
(POWER SW OFF : ON)
QR6003
QR6009
A)
A
CATE
N
014S)

SERVO BLOCK DIAGRAM

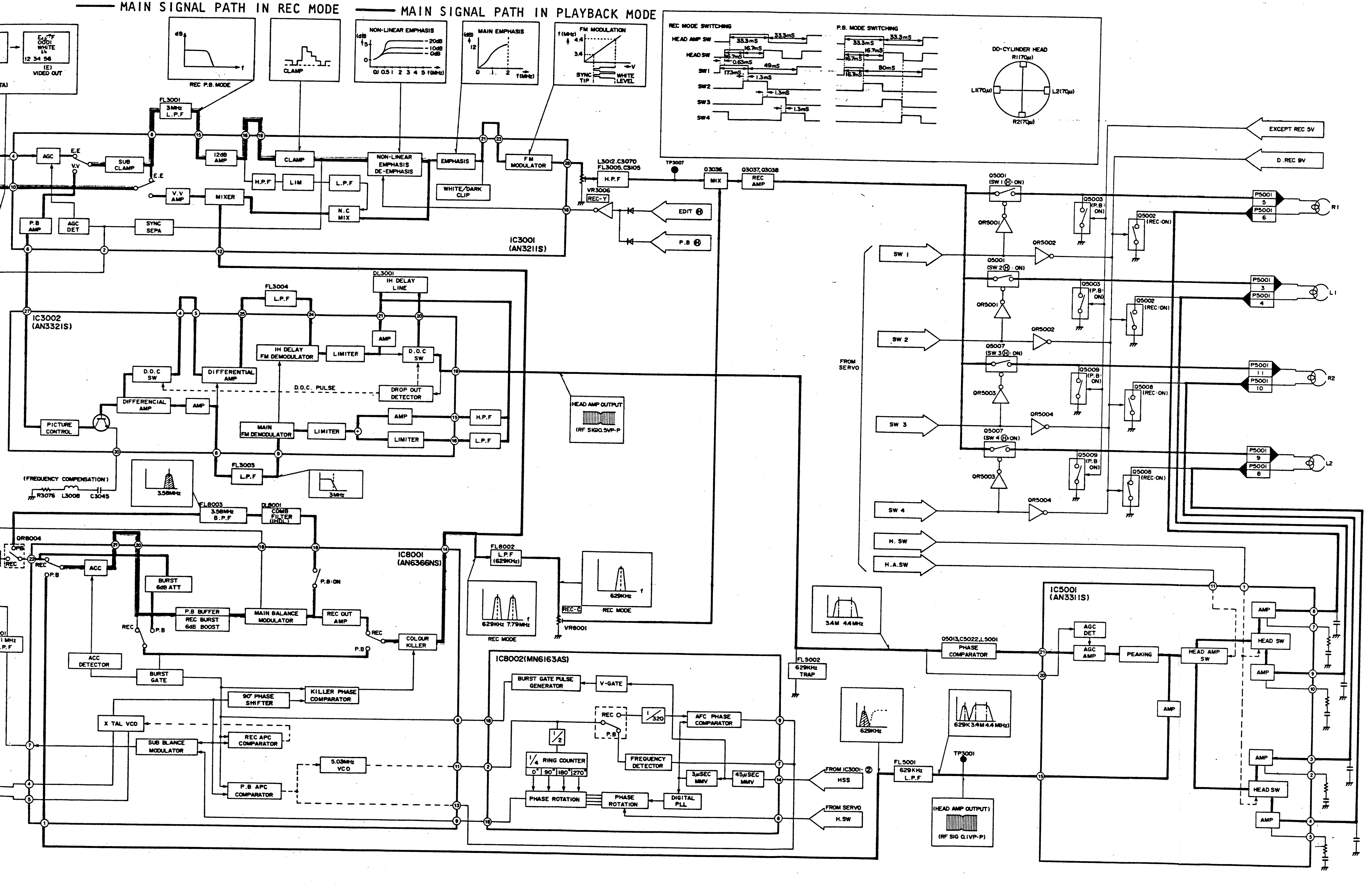

CYLINDER SERVO SPEED LOOP
CAPSTAN SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
CAPSTAN SERVO PHASE LOOP
FROM SYSTEM CONTROL
CTL DUTY Ⓛ
PB CTL
TRACKING
TR DOWN
TR UP
V I
Vφ
REC Ⓗ / PB Ⓜ / MEM Ⓛ
REV Ⓗ / FWD Ⓜ / STOP Ⓛ
EE Ⓗ
CYL ON Ⓗ
D REC Ⓗ
VI \ Vφ | L | H
L | STILL | NORMAL
H | UNLOAD | FF / REV CUE / REV
L.P.F.
C2012 C2013 R2013
CAP SPEED COMPARATOR
CAP PHASE COMPARATOR
COUNT DOWN
AMP
CYL PHASE COMPARATOR
CYL SPEED COMPARATOR
COUNT DOWN CLOCK
P
R
L.P.F.
C2006 C2007 R2006 R2007
CTL DUTY
R/P/M INPUT
CLK 3.58 (MHz)
DIGITAL TR MM
D. VCC
+5V
DREC Ⓗ
IC 2001 (MN67461VDGF)
CTL HEAD
P2003 2
30Hz
TP2001
V REF
(NORMAL 2.5V SPEED UP → VOLTAGE UP SPEED DOWN → VOLTAGE DOWN)
CYL ON Ⓗ / OFF Ⓛ
IC2007
CTL DUTY
SHIFT(L)2
SHIFT(L)1
P.B CTL
H.SW
H.AMP SW
TR UP Ⓗ
TR DOWN Ⓗ
RESET
+5V
HEAD TR RECOGNITION
QR2004
X2001
3.58MHz OSC
FROM LUMINANCE & CHROMINANCE
3.58MHz
FROM IC6007-13
HEAD TR. RECOGNITION
(a)
(b)
Q2001 Q2002 Q2003
CYLINDER DRIVE +5V
P2001 1
P2001 13
P2001 2
P2001 10
P2001 12
P2001 5
P2001 6
P2001 3
P2001 4
CYL ON/OFF
POSITION SIGNAL PROCESS
DIFFERENTIAL AMPLIFIER
MOTOR DRIVE
TORQUE CONTROL
VCC
+5V
IC 2006 (TA8402F)
(CYLINDER MOTOR DRIVE)
P2001 14
P2001 8
CYLINDER PG
CYLINDER FG
CAP POWER
IC 2002 (AN3798S)
(HEAD SWITCHING PULSE GENERATOR)
HSW
FG OUT
EE Ⓗ
FG IN
PG IN
SWITCHING PULSE GENERATOR
VCC
+5V
VREF IN
VREF OUT
TO HEAD AMP
SW 1
SW 2
SW 3
SW 4
H·A·SW
H·SW
FROM VIDEO
VSS
ETR
RIPPLE CANCELLER
TORQUE CONTROL
MOTOR DRIVE
DIFFERENTIAL AMPLIFIER
POSITION SIGNAL PROCESS
TORQUE DIRECTION
IC 2005 (BA6430S)
(CAPSTAN MOTOR DRIVE)
CAP REV Ⓗ / STOP Ⓜ / FWD Ⓛ
P2002 4
P2002 8
P2002 13
P2002 5
P2002 7
P2002 9
P2002 11
P2002 12
P2002 14
P2002 1
REC MODE SWITCHING
IC2002-27 HEAD AMP SW
IC2002-28 HEAD SW
IC2002-23 SW1
IC2002-24 SW2
IC2002-25 SW3
IC2002-26 SW4
33.3mS
16.7mS
0.83mS
17.3mS
40mS
1.3mS
P.B MODE SWITCHING
IC2002-27 HEAD AMP SW
IC2002-28 HEAD SW
IC2002-23 SW 1
IC2002-24 SW 2
IC2002-25 SW 3
IC2002-26 SW 4
33.3mS
16.7mS
50mS


CAPSTAN SERVO PHASE LOOP
CYLINDER DRIVE +5V
FROM POWER
P2001
IC 2006 (TA8402F)
(CYLINDER MOTOR DRIVE)
ON SIGNAL PROCESS
TORQUE CONTROL
VCC
+5V
HALL ICA
HALL ICB
HALL ICC
PG HEAD
FG HEAD
M1
M2
M3
DD CYLINDER MOTOR
CAP POWER
FROM POWER
ETR
P2002
TION SIGNAL PROCESS
TORQUE DIRECTION
HALL IC1
HALL IC2
HALL IC3
FG HEAD
DD CAPSTAN MOTOR

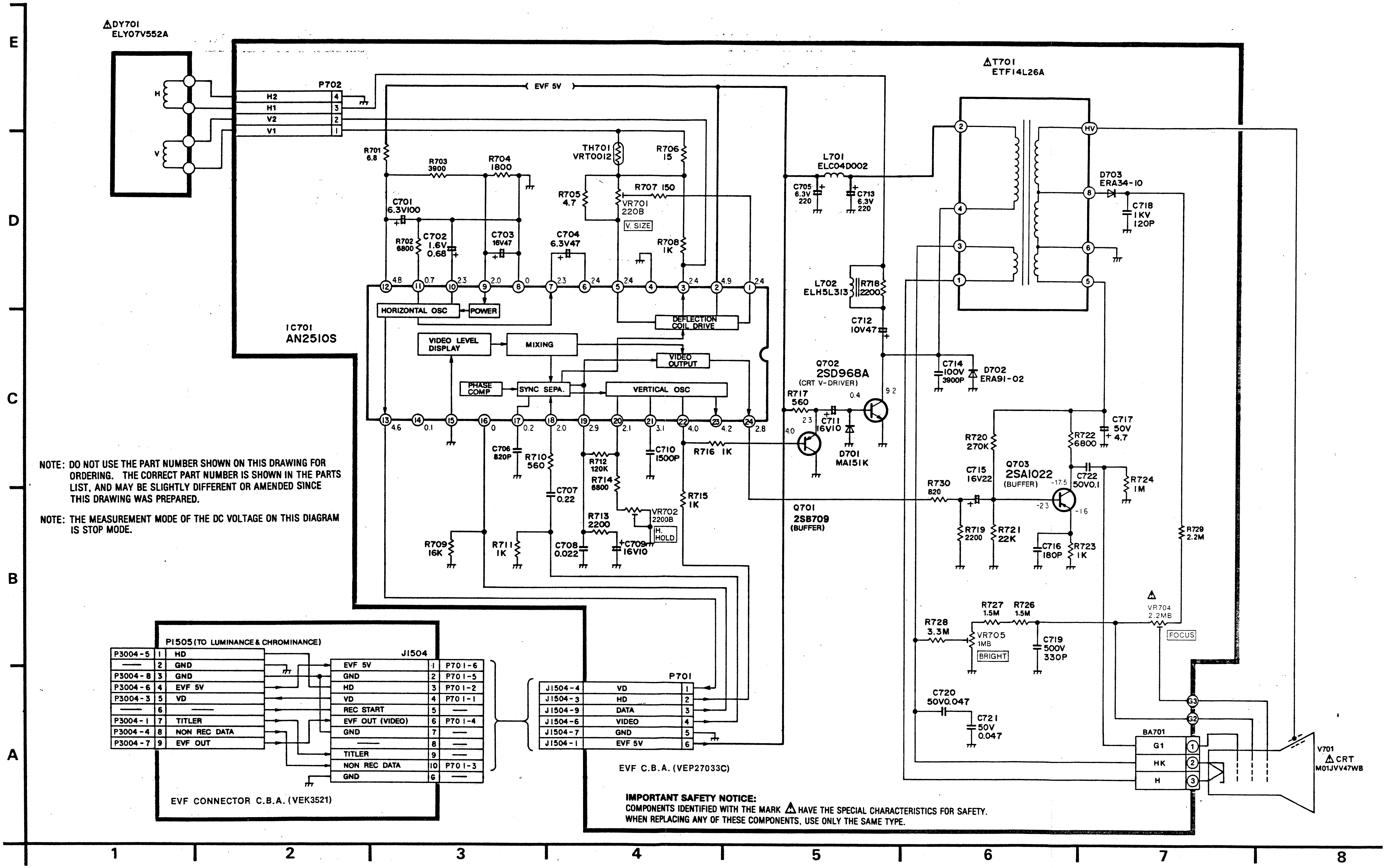
LUMINANCE & CHROMINANCE BLOCK DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
(C) RECORDED PICTURE
(D) CHARACTOR SIGNAL (NON-REC DATA)
(E) VIDEO OUT
FROM SYSTEM CONTROL
REC DATA
Q333 BUFFER
CAMERA Y
CHARACTOR MIX
CAMERA Q3001
LINE Y
LINE
AGC
E.E
V.V
SUB CLAMP
V.V AMP
MIXER
P.B AMP
AGC DET
SYNC SEPA
Q3021 AMP
FL3001 3MHz L.P.F
REC P.B. MODE
12dB AMP
CLAMP
H.P.F
LIM
L.P.F
N.C MIX
NON-LINEAR EMPHASIS DE-EMPHASIS
NON-LINEAR EMPHASIS
MAIN EMPHASIS
EMPHASIS
WHITE/DARK CLIP
FM MODULATION
SYNC TIP
WHITE LEVEL
FM MODULATOR
IC3001 (AN3211S)
L3012, C3070 FL3005, C3105
H.P.F
VR3006
REC-Y
TP3007
Q3036 MIX
Q3037, Q3038 REC AMP
EDIT
P.B
REC MODE SWITCHING
HEAD AMP SW
HEAD SW
SW1
SW2
SW3
SW4
VIDEO SIGNAL
CHARACTER SIGNAL (REC DATA)
RECORDED PICTURE
CHARACTER BRIGHTNESS IS KEPT 80%
VSS OUT TO SERVO
VIDEO OUT P3002
EVF OUT P3004
TP3002
IC3002 (AN3321S)
FL3004 L.P.F
DL3001 1H DELAY LINE
1H DELAY FM DEMODULATOR
LIMITER
AMP
D.O.C SW
DIFFERENTIAL AMP
D.O.C PULSE
DROP OUT DETECTOR
PICTURE CONTROL
MAIN FM DEMODULATOR
LIMITER
H.P.F
L.P.F
HEAD AMP OUTPUT
(RF SIG 0.5VP-P)
(FREQUENCY COMPENSATION)
R3076 L3008 C3045
FL3003 L.P.F
3.58MHz
3MHz
FL8003 3.58MHz B.P.F
DL8001 COMB FILTER (1HDL)
CAMERA C
LINE C
Q8011 CAMERA
Q8005 Q8010 AMP
QR8004
REC
P.B
ACC
BURST 6dB ATT
P.B BUFFER REC BURST 6dB BOOST
MAIN BALANCE MODULATOR
REC OUT AMP
P.B ON
COLOUR KILLER
IC8001 (AN6366NS)
FL8002 L.P.F (629KHz)
629KHz 7.79MHz
REC MODE
629KHz
REC-C
VR8001
4.21MHz
FL8001 4.21MHz B.P.F
ACC DETECTOR
BURST GATE
90° PHASE SHIFTER
KILLER PHASE COMPARATOR
X TAL VCO
SUB BLANCE MODULATOR
REC APC COMPARATOR
P.B APC COMPARATOR
5.03MHz VCO
0.5Vp-p 3.58MHz
TP8001
X8001 OSC 3.58MHz
IC8002 (MN6163AS)
BURST GATE PULSE GENERATOR
V-GATE
1/2
1/320
AFC PHASE COMPARATOR
1/4 RING COUNTER
0° 90° 180° 270°
FREQUENCY DETECTOR
3μSEC MMV
45μSEC MMV
PHASE ROTATION
DIGITAL PLL
FL5002 629KHz TRAP

CHROMINANCE BLOCK DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
VIDEO OUT
REC P.B. MODE
CLAMP
NON-LINEAR EMPHASIS
-20dB
-10dB
-0dB
MAIN EMPHASIS
FM MODULATION
SYNC TIP
WHITE LEVEL
REC MODE SWITCHING
P.B. MODE SWITCHING
HEAD AMP SW
HEAD SW
SW1
SW2
SW3
SW4
33.3mS
16.7mS
0.63mS
49mS
80mS
1.3mS
DD-CYLINDER HEAD
R1(70μ)
L1(70μ)
L2(70μ)
R2(70μ)
FL3001
3MHz L.P.F
AGC
SUB CLAMP
12dB AMP
CLAMP
NON-LINEAR EMPHASIS DE-EMPHASIS
EMPHASIS
FM MODULATOR
WHITE/DARK CLIP
H.P.F
LIM
L.P.F
N.C MIX
V.V AMP
MIXER
P.B AMP
AGC DET
SYNC SEPA
IC3001 (AN3211S)
E.E
V.V
L3012,C3070
FL3005,C3105
VR3006
REC-Y
TP3007
Q3036
MIX
Q3037,Q3038
REC AMP
EDIT Ⓗ
P.B Ⓗ
EXCEPT REC 5V
D.REC 9V
FL3004
DL3001
1H DELAY LINE
IC3002 (AN3321S)
1H DELAY FM DEMODULATOR
LIMITER
AMP
D.O.C SW
DIFFERENTIAL AMP
DIFFERENCIAL AMP
D.O.C. PULSE
DROP OUT DETECTOR
PICTURE CONTROL
MAIN FM DEMODULATOR
LIMITER
HEAD AMP OUTPUT
(RF SIG 0.5VP-P)
FL3003
(FREQUENCY COMPENSATION)
R3076 L3008 C3045
3.58MHz
3MHz
FL8003
3.58MHz B.P.F
DL8001
COMB FILTER (1HDL)
QR8004
IC8001 (AN6366NS)
ACC
BURST 6dB ATT
P.B BUFFER REC BURST 6dB BOOST
MAIN BALANCE MODULATOR
REC OUT AMP
COLOUR KILLER
P.B:ON
ACC DETECTOR
BURST GATE
90° PHASE SHIFTER
KILLER PHASE COMPARATOR
X TAL VCO
SUB BLANCE MODULATOR
REC APC COMPARATOR
5.03MHz VCO
P.B APC COMPARATOR
FL8002
L.P.F (629KHz)
629KHz 7.79MHz
REC MODE
REC-C
VR8001
629KHz
IC8002 (MN6163AS)
BURST GATE PULSE GENERATOR
V-GATE
1/320
AFC PHASE COMPARATOR
1/2
1/4 RING COUNTER
0° 90° 180° 270°
FREQUENCY DETECTOR
3μSEC MMV
45μSEC MMV
PHASE ROTATION
DIGITAL PLL
FL5002
629KHz TRAP
FROM IC3001-②
HSS
FROM SERVO
H.SW
FROM SERVO
SW 1
SW 2
SW 3
SW 4
H. SW
H.A.SW
Q5001 (SW 1 Ⓗ : ON)
Q5001 (SW 2 Ⓗ : ON)
Q5007 (SW 3 Ⓗ : ON)
Q5007 (SW 4 Ⓗ : ON)
QR5001
QR5002
QR5003
QR5004
Q5003 (P.B : ON)
Q5009 (P.B : ON)
Q5002 (REC : ON)
Q5008 (REC : ON)
P5001
R1
L1
R2
L2
3.4M 4.4MHz
629KHz
629K 3.4M 4.4 MHz
IC5001 (AN3311S)
Q5013,C5022,L5001
PHASE COMPARATOR
AGC DET
AGC AMP
PEAKING
HEAD AMP SW
HEAD SW
AMP
FL5001
629KHz L.P.F
TP3001
(HEAD AMP OUTPUT)
(RF SIG 0.1VP-P)

E.V.F. SCHEMATIC DIAGRAM

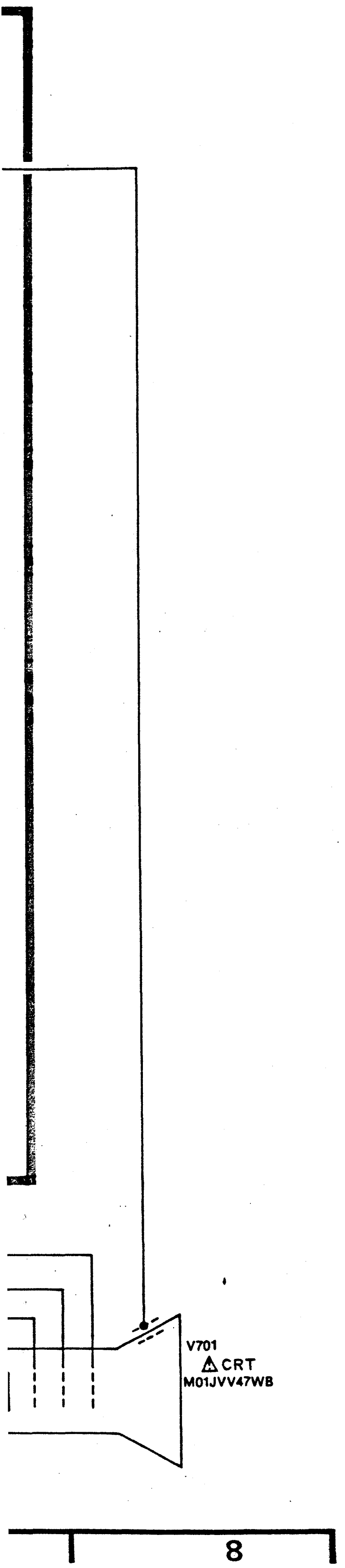


E
D
C
B
A
1
2
3
4
5
6
7
8
⚠DY701
ELY07V552A
H
V
P702
H2 4
H1 3
V2 2
V1 1
EVF 5V
R701 6.8
R703 3900
R704 1800
C701 6.3V100
R702 6800
C702 1.6V 0.68
C703 16V47
C704 6.3V47
TH701 VRT0012
R705 4.7
R707 150
VR701 220B
V. SIZE
R706 15
R708 1K
HORIZONTAL OSC
POWER
DEFLECTION COIL DRIVE
VIDEO LEVEL DISPLAY
MIXING
VIDEO OUTPUT
PHASE COMP
SYNC SEPA.
VERTICAL OSC
IC701
AN2510S
C706 820P
R710 560
R712 120K
R714 6800
C710 1500P
R716 1K
C707 0.22
R713 2200
VR702 220B
H. HOLD
R715 1K
R709 16K
R711 1K
C708 0.022
C709 16V10
L701
ELC04D002
C705 6.3V 220
C713 6.3V 220
L702 ELH5L313
R718 2200
C712 10V47
Q702
2SD968A
(CRT V-DRIVER)
R717 560
C711 16V10
D701 MA151K
Q701
2SB709
(BUFFER)
⚠T701
ETF14L26A
HV
D703 ERA34-10
C718 1KV 120P
C714 100V 3900P
D702 ERA91-02
C717 50V 4.7
R720 270K
R722 6800
C715 16V22
Q703
2SA1022
(BUFFER)
C722 50V0.1
R724 1M
R730 820
R719 2200
R721 22K
C716 180P
R723 1K
R729 2.2M
R727 1.5M
R726 1.5M
R728 3.3M
VR705 1MB
BRIGHT
C719 500V 330P
⚠ VR704 2.2MB
FOCUS
C720 50V0.047
C721 50V 0.047
BA701
G1
HK
H
G3
G2
V701
⚠CRT
M01JVV47WB
P1505 (TO LUMINANCE & CHROMINANCE)
J1504
P3004-5 1 HD
2 GND
P3004-8 3 GND
P3004-6 4 EVF 5V
P3004-3 5 VD
6
P3004-1 7 TITLER
P3004-4 8 NON REC DATA
P3004-7 9 EVF OUT
EVF 5V 1 P701-6
GND 2 P701-5
HD 3 P701-2
VD 4 P701-1
REC START 5
EVF OUT (VIDEO) 6 P701-4
GND 7
8
TITLER 9
NON REC DATA 10 P701-3
GND 6
EVF CONNECTOR C.B.A. (VEK3521)
P701
J1504-4 VD 1
J1504-3 HD 2
J1504-9 DATA 3
J1504-6 VIDEO 4
J1504-7 GND 5
J1504-1 EVF 5V 6
EVF C.B.A. (VEP27033C)

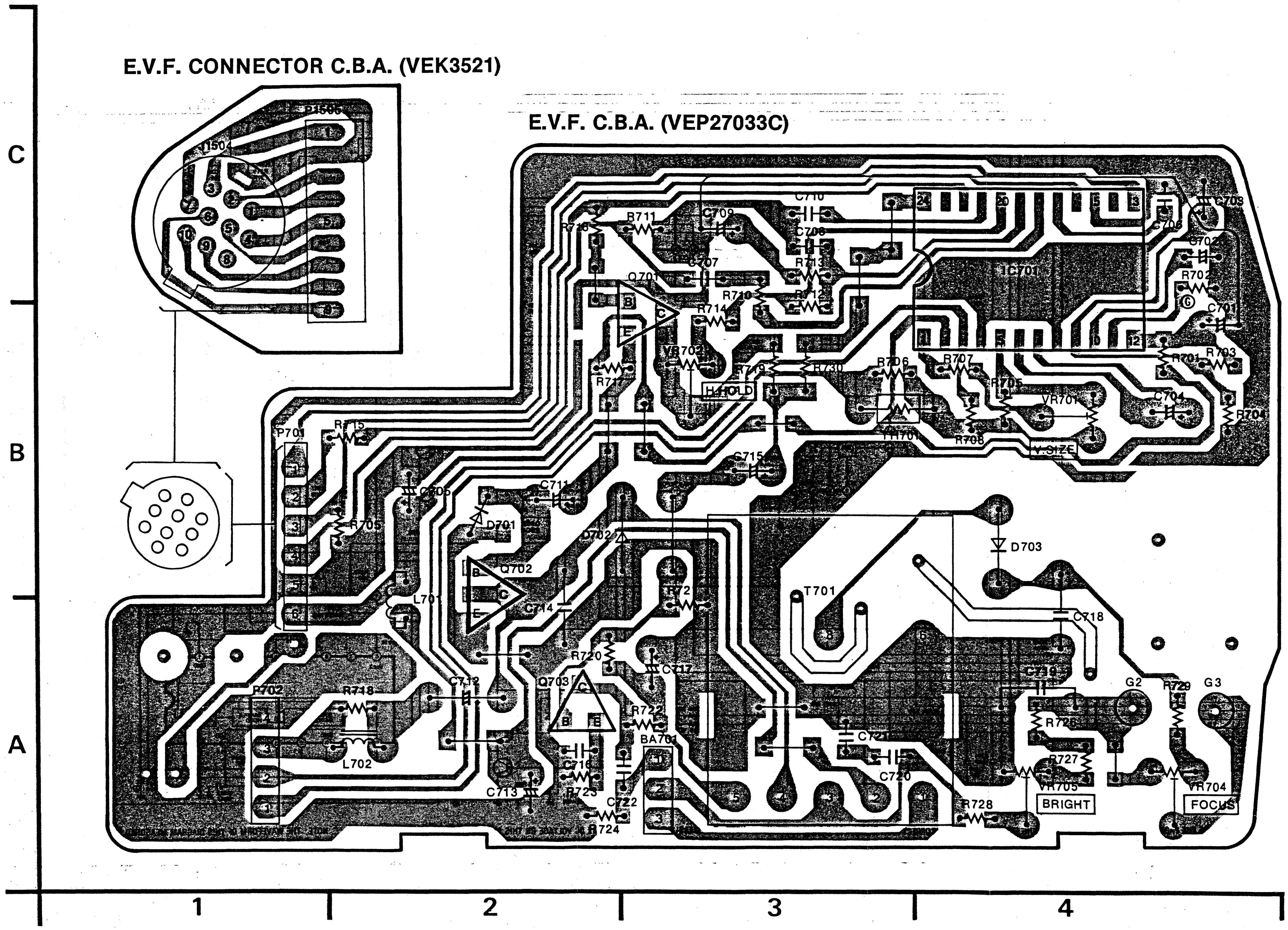
NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

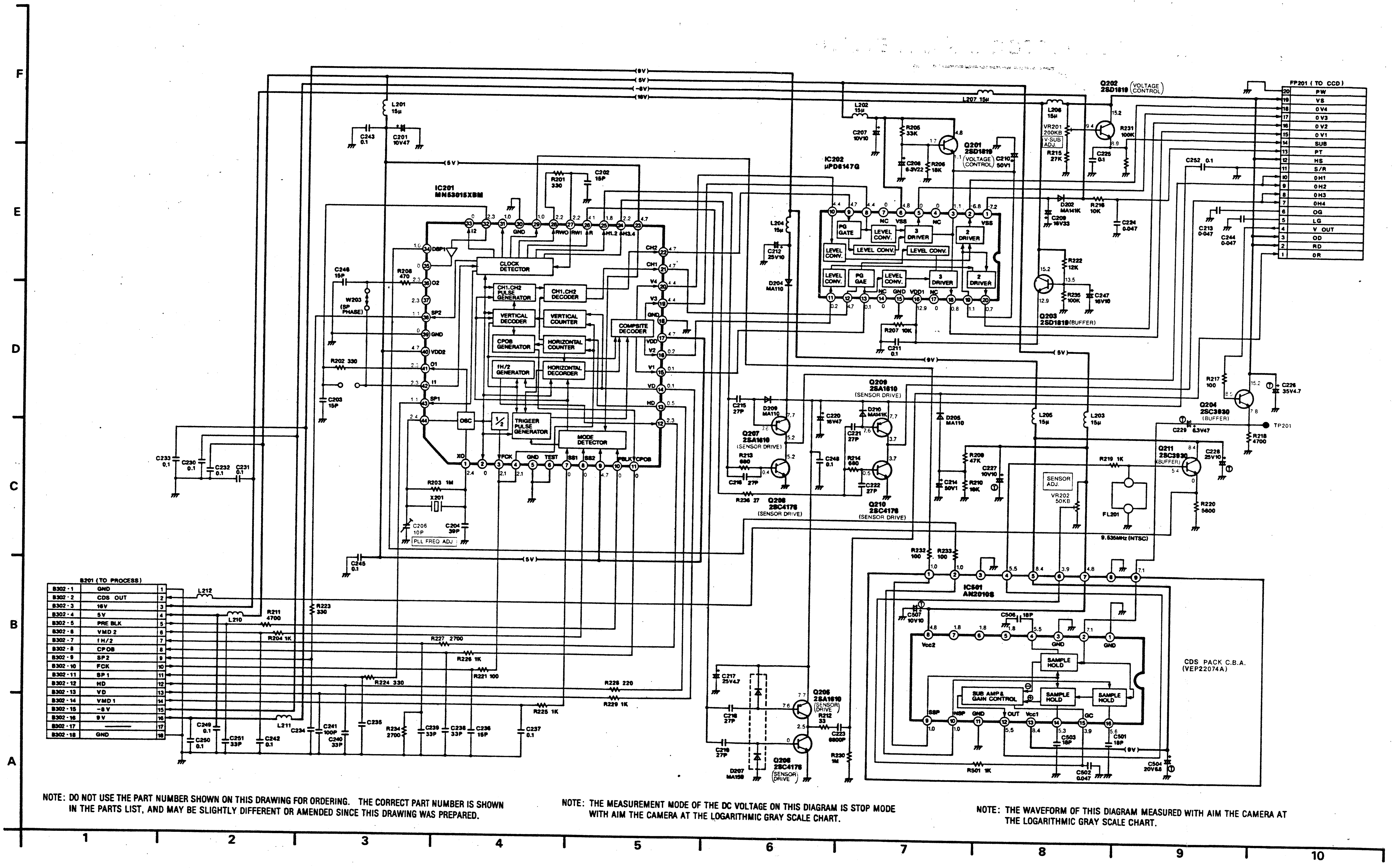

V701
⚠CRT
M01JVV47WB
8

E.V.F. C.B.A. (VEP27033C)


E.V.F. CONNECTOR C.B.A. (VEK3521)
P1505
P1504
E.V.F. C.B.A. (VEP27033C)
C
B
A
1
2
3
4
R716
R711
C709
C710
C708
C707
Q701
R713
R710
R712
R714
IC701
C703
C706
C702
R702
C701
R701
R703
VR702
R719
R730
H-HOLD
R706
R707
R705
VR701
C704
R704
TH701
R708
V-SIZE
P701
R715
C705
R709
C711
D701
C715
D702
Q702
D703
R721
T701
L701
C714
C718
R720
C717
C712
R718
Q703
C719
G2
R729
G3
R702
R722
R726
BA701
C721
L702
C716
C720
R727
C713
R723
C722
VR705
VR704
R728
BRIGHT
FOCUS
R724

E.V.F. & E.V.F. C.B.A.
SENSOR & CDS

SENSOR & CDS SCHEMATIC DIAGRAM


IC201
MN53015XBM
IC202
μPD8147G
IC501
AN2010S
CLOCK DETECTOR
CH1.CH2 PULSE GENERATOR
CH1.CH2 DECODER
VERTICAL DECODER
VERTICAL COUNTER
COMPSITE DECODER
CPOB GENERATOR
HORIZONTAL COUNTER
1H/2 GENERATOR
HORIZONTAL DECORDER
OSC
TRIGEER PULSE GENERATOR
MODE DETECTOR
PLL FREQ ADJ
PG GATE
LEVEL CONV.
3 DRIVER
2 DRIVER
Q201
2SD1819
(VOLTAGE CONTROL)
Q202
2SD1819
(VOLTAGE CONTROL)
Q203
2SD1819(BUFFER)
Q204
2SC3930
(BUFFER)
Q205
2SA1610
(SENSOR DRIVE)
Q206
2SC4176
(SENSOR DRIVE)
Q207
2SA1610
(SENSOR DRIVE)
Q208
2SC4176
(SENSOR DRIVE)
Q209
2SA1610
(SENSOR DRIVE)
Q210
2SC4176
(SENSOR DRIVE)
Q211
2SC3930
(BUFFER)
VR201 200KB V-SUB ADJ.
SENSOR ADJ.
VR202 50KB
FL201
9.536MHz (NTSC)
TP201
CDS PACK C.B.A. (VEP22074A)
SAMPLE HOLD
SUB AMP & GAIN CONTROL
(9V)
(5V)
(-8V)
(16V)
B201 (TO PROCESS)
B302 - 1 GND 1
B302 - 2 CDS OUT 2
B302 - 3 16V 3
B302 - 4 5V 4
B302 - 5 PRE BLK 5
B302 - 6 VMD 2 6
B302 - 7 1H/2 7
B302 - 8 CPOB 8
B302 - 9 SP2 9
B302 - 10 FCK 10
B302 - 11 SP1 11
B302 - 12 HD 12
B302 - 13 VD 13
B302 - 14 VMD1 14
B302 - 15 -8V 15
B302 - 16 9V 16
B302 - 17 17
B302 - 18 GND 18
FP201 (TO CCD)
20 PW
19 VS
18 0V4
17 0V3
16 0V2
15 0V1
14 SUB
13 PT
12 HS
11 S/R
10 0H1
9 0H2
8 0H3
7 0H4
6 OG
5 LG
4 V OUT
3 OD
2 RD
1 0R
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

SENSOR C.B.
CDS C.B.A.

Transistor

Q201
Q202
Q203
Q204
Q205
Q206
Q207
Q208
Q209
Q210
Q211

Integrated Cir

IC201
IC202
IC501

Test Point

TP201
TP201

Adjustment

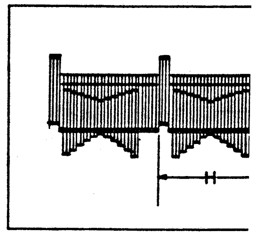
VR201
VR202
C206

Connector

B201
B201
FP201
FP201

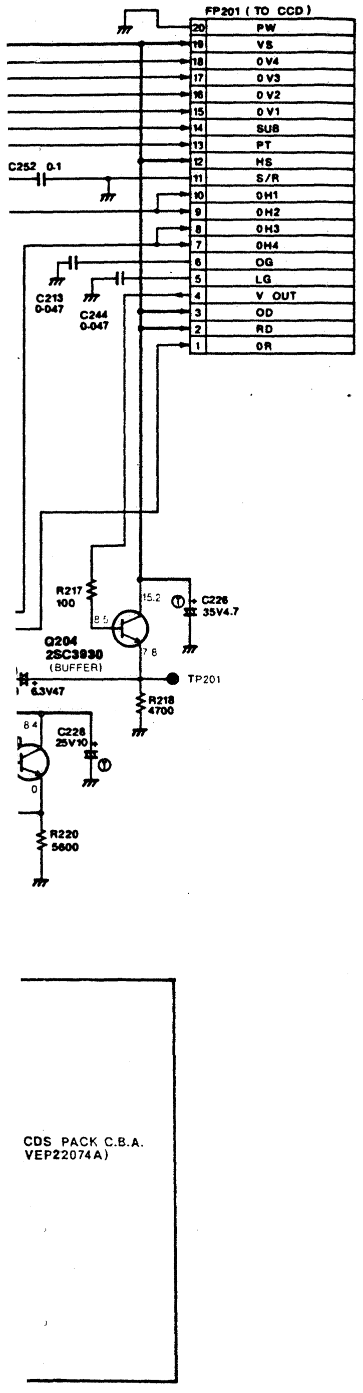
ADDRESS INFO
Ⓒ ··· COMPO
Ⓕ ··· FOIL SID

SENSOR CIRCUIT TP (
WAVE FORM(REF No.



TP201 STOP
20mV/20μsec. div. 0.6Vp-p

SENSOR C.B.A. (VEP22073B) & CDS PACK C.B.A. (VEP22074A)


FP201 (TO CCD)
20 PW
19 VS
18 0 V4
17 0 V3
16 0 V2
15 0 V1
14 SUB
13 PT
12 HS
11 S/R
10 0H1
9 0H2
8 0H3
7 0H4
6 OG
5 LG
4 V OUT
3 OD
2 RD
1 0R
C252 0.1
C213 0.047
C244 0.047
R217 100
15.2
8.5
7.8
C226 35V4.7
Q204 2SC3930 (BUFFER)
TP201
6.3V47
R218 4700
8.4
0
C228 25V10
R220 5600
CDS PACK C.B.A. VEP22074A)

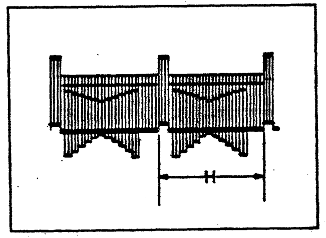
WITH AIM THE CAMERA AT

10

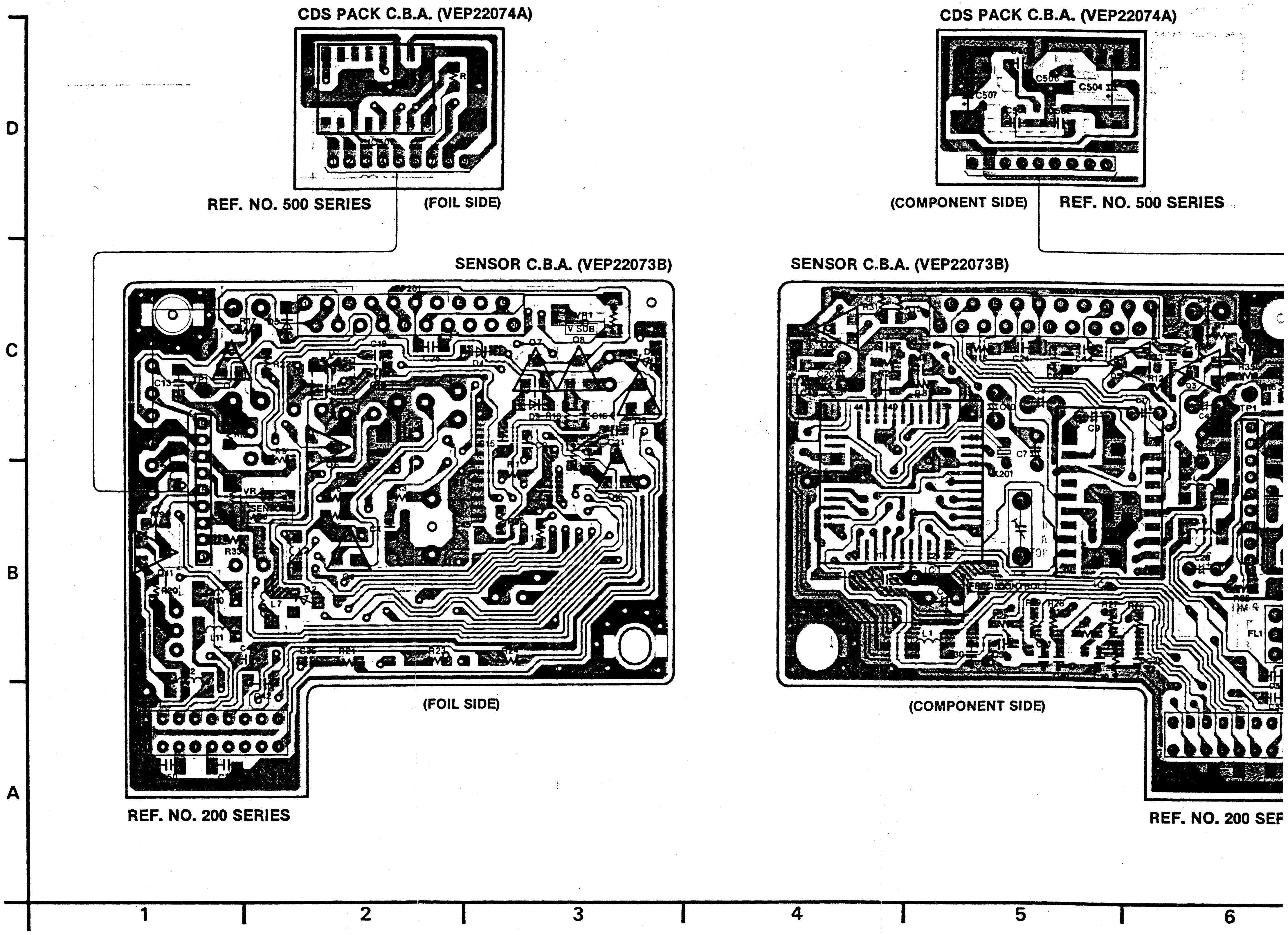
SENSOR C.B.A. & CDS C.B.A.		
Transistor		
Q201	B-2	Ⓕ
Q202	C-4	Ⓒ
Q203	C-6	Ⓒ
Q204	C-1	Ⓕ
Q205	C-6	Ⓒ
Q206	C-2	Ⓕ
Q207	C-3	Ⓕ
Q208	C-3	Ⓕ
Q209	C-3	Ⓕ
Q210	B-3	Ⓕ
Q211	B-1	Ⓕ
Integrated Circuit		
IC201	B-5	Ⓒ
IC202	B-5	Ⓒ
IC501	D-2	Ⓕ
Test Point		
TP201	C-6	Ⓒ
TP201	C-1	Ⓕ
Adjustment		
VR201	C-3	Ⓕ
VR202	B-2	Ⓕ
C206	B-5	Ⓒ
Connector		
B201	A-6	Ⓒ
B201	A-1	Ⓕ
FP201	C-5	Ⓒ
FP201	C-2	Ⓕ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

SENSOR CIRCUIT TP (Test Point) WAVE FORM(REF No. 200 Series)



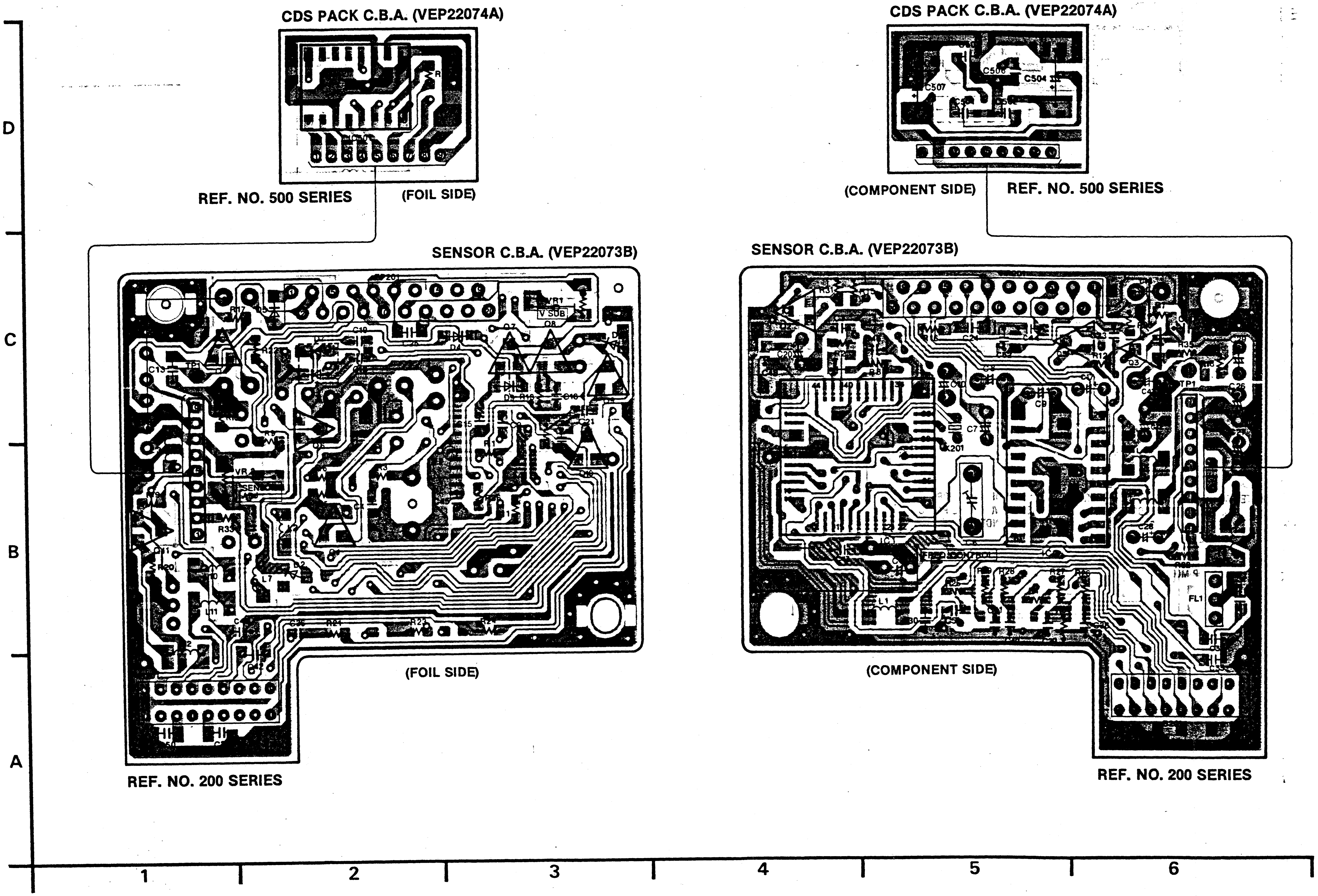
TP201 STOP
20mV/20µsec. div. 0.6Vp-p


CDS PACK C.B.A. (VEP22074A)
REF. NO. 500 SERIES
(FOIL SIDE)
CDS PACK C.B.A. (VEP22074A)
(COMPONENT SIDE)
REF. NO. 500 SERIES
SENSOR C.B.A. (VEP22073B)
(FOIL SIDE)
REF. NO. 200 SERIES
SENSOR C.B.A. (VEP22073B)
(COMPONENT SIDE)
REF. NO. 200 SEF
C504
C506
C507
V SUB
VR1
TP1
IC201
FL1
L1
L7
D
C
B
A
1
2
3
4
5
6

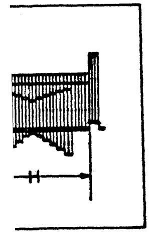
SENSOR C.B.A. (VEP22073B) & CDS PACK C.B.A. (VEP22074A)

SOR C.B.A. & C.B.A.		
sistor		
:01	B-2	Ⓕ
:02	C-4	Ⓒ
:03	C-6	Ⓒ
:04	C-1	Ⓕ
:05	C-6	Ⓒ
:06	C-2	Ⓕ
:07	C-3	Ⓕ
:08	C-3	Ⓕ
:09	C-3	Ⓕ
10	B-3	Ⓕ
11	B-1	Ⓕ
rated Circuit		
:01	B-5	Ⓒ
:02	B-5	Ⓒ
;01	D-2	Ⓕ
Point		
201	C-6	Ⓒ
201	C-1	Ⓕ
stment		
201	C-3	Ⓕ
202	B-2	Ⓕ
)6	B-5	Ⓒ
ector		
)1	A-6	Ⓒ
)1	A-1	Ⓕ
:01	C-5	Ⓒ
:01	C-2	Ⓕ

SS INFORMATION
COMPONENT SIDE
FOIL SIDE

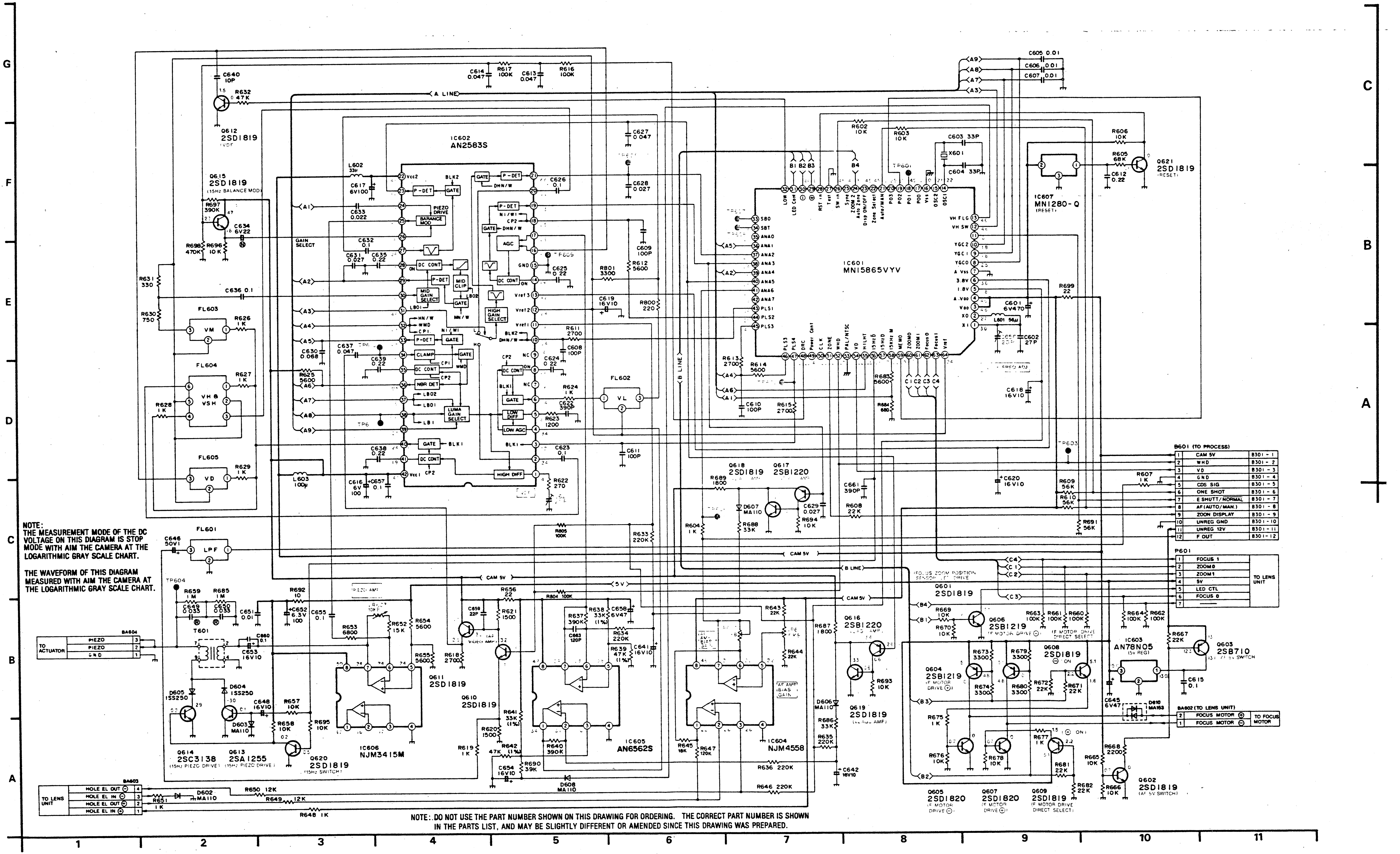

CDS PACK C.B.A. (VEP22074A)
REF. NO. 500 SERIES
(FOIL SIDE)
CDS PACK C.B.A. (VEP22074A)
(COMPONENT SIDE)
REF. NO. 500 SERIES
SENSOR C.B.A. (VEP22073B)
SENSOR C.B.A. (VEP22073B)
(FOIL SIDE)
(COMPONENT SIDE)
REF. NO. 200 SERIES
REF. NO. 200 SERIES
D
C
B
A
1
2
3
4
5
6

T TP (Test Point)
F No. 200 Series)



Vp-p

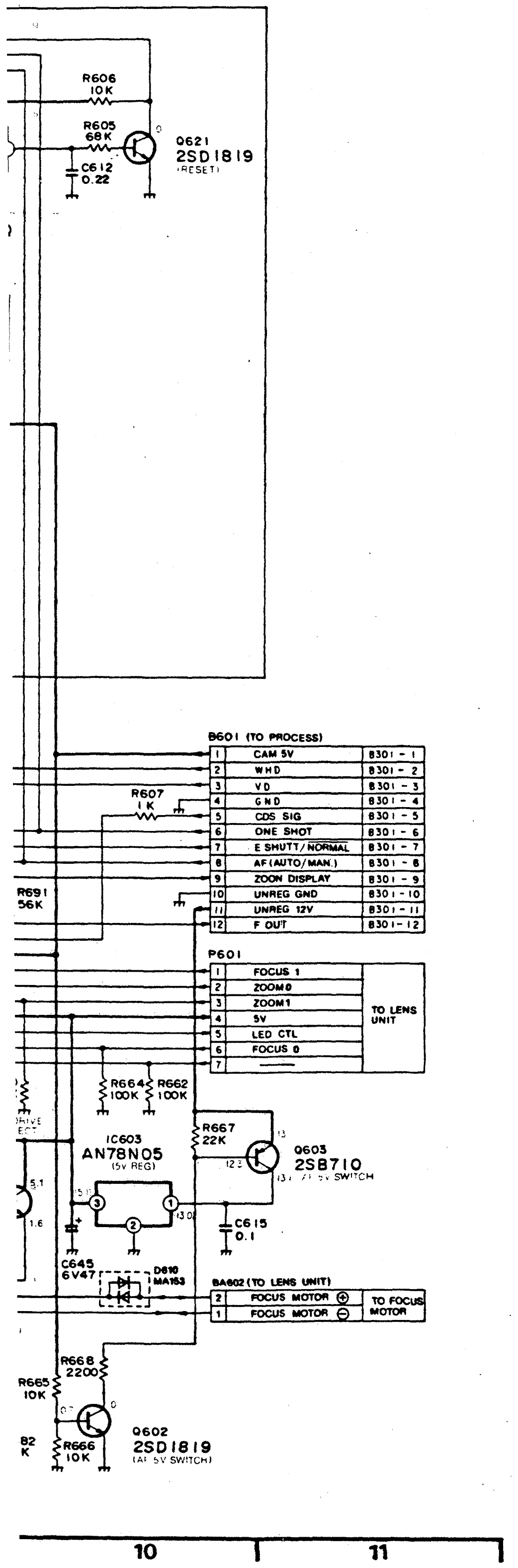
AUTO FOCUS SCHEMATIC DIAGRAM


IC601
MN15865VYV
IC602
AN2583S
IC603
AN78N05
(5V REG)
IC604
NJM4558
IC605
AN6562S
IC606
NJM3415M
IC607
MN1280-Q
(RESET)
Q601
2SD1819
Q602
2SD1819
(AF 5V SWITCH)
Q603
2SB710
(AF 5V SWITCH)
Q604
2SB1219
Q605
2SD1820
Q606
2SB1219
Q607
2SD1820
Q608
2SD1819
Q609
2SD1819
(F MOTOR DRIVE DIRECT SELECT)
Q610
2SD1819
Q611
2SD1819
Q612
2SD1819
(VDF)
Q613
2SA1255
(15Hz PIEZO DRIVE)
Q614
2SC3138
(15Hz PIEZO DRIVE)
Q615
2SD1819
(15Hz BALANCE MOD)
Q616
2SB1220
Q617
2SB1220
Q618
2SD1819
Q619
2SD1819
Q620
2SD1819
(15Hz SWITCH)
Q621
2SD1819
(RESET)
FL601
LPF
FL602
VL
FL603
VM
FL604
VH & VSH
FL605
VD
T601
X601
A LINE
B LINE
CAM 5V
5V
GAIN SELECT
B601 (TO PROCESS)
1 CAM 5V B301 - 1
2 WHD B301 - 2
3 VD B301 - 3
4 GND B301 - 4
5 CDS SIG B301 - 5
6 ONE SHOT B301 - 6
7 E SHUTT/NORMAL B301 - 7
8 AF(AUTO/MAN.) B301 - 8
9 ZOON DISPLAY B301 - 9
10 UNREG GND B301 - 10
11 UNREG 12V B301 - 11
12 F OUT B301 - 12
P601
1 FOCUS 1
2 ZOOM 0
3 ZOOM 1
4 5V
5 LED CTL
6 FOCUS 0
7
TO LENS UNIT
BA602 (TO LENS UNIT)
2 FOCUS MOTOR ⊕
1 FOCUS MOTOR ⊖
TO FOCUS MOTOR
BA604
TO ACTUATOR
3 PIEZO
2 PIEZO
1 GND
BA603
TO LENS UNIT
4 HOLE EL OUT ⊖
3 HOLE EL IN ⊕
2 HOLE EL OUT ⊕
1 HOLE EL IN ⊖
TP6
TP603
TP604
G
F
E
D
C
B
A
C
B
A
1
2
3
4
5
6
7
8
9
10
11

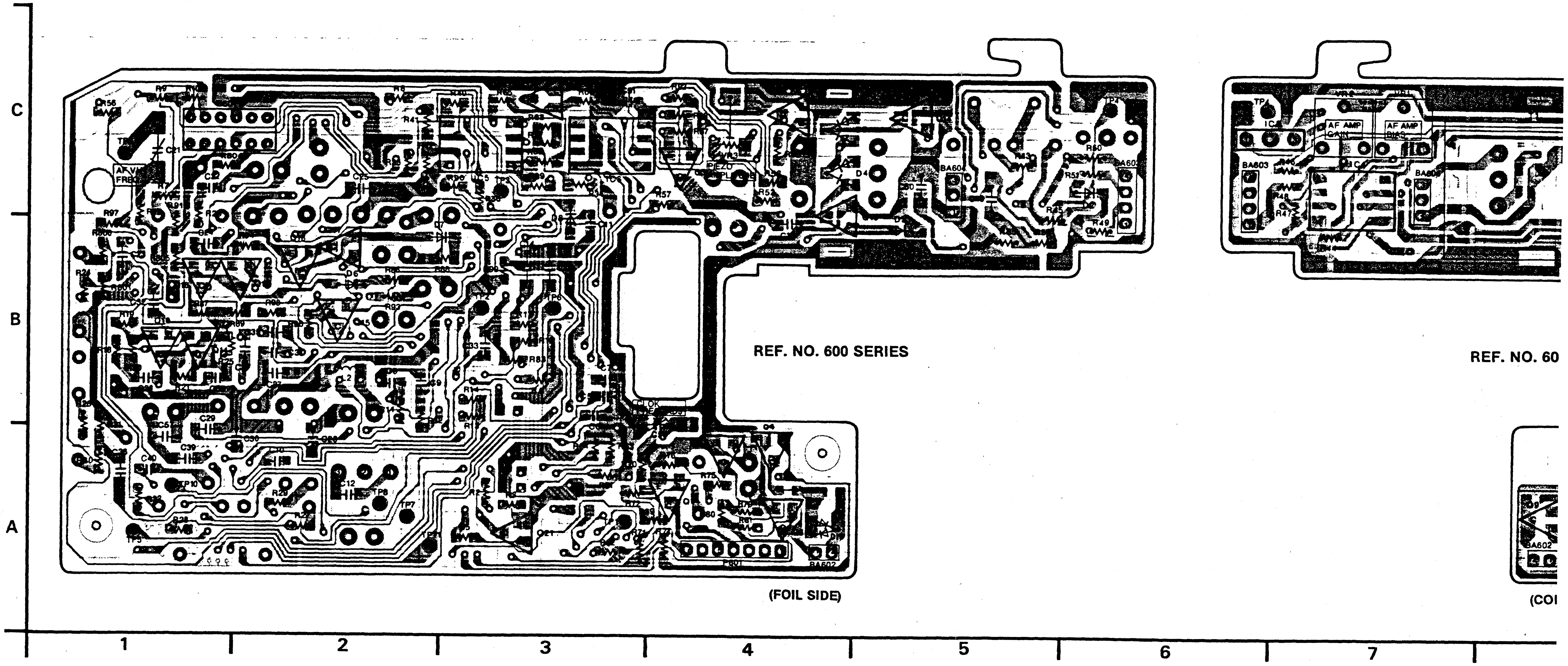
NOTE:
THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

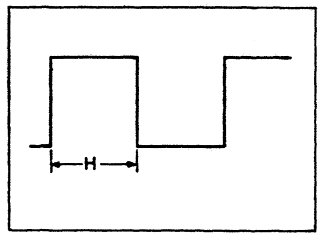
NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.


R606
10K
R605
68K
Q621
2SD1819
(RESET)
C612
0.22
B601 (TO PROCESS)
1 CAM 5V B301 - 1
2 WHD B301 - 2
3 VD B301 - 3
4 GND B301 - 4
5 CDS SIG B301 - 5
6 ONE SHOT B301 - 6
7 E SHUTT/NORMAL B301 - 7
8 AF (AUTO/MAN.) B301 - 8
9 ZOON DISPLAY B301 - 9
10 UNREG GND B301 - 10
11 UNREG 12V B301 - 11
12 F OUT B301 - 12
R607
1K
R691
56K
P601
1 FOCUS 1
2 ZOOM0
3 ZOOM1
4 5V
5 LED CTL
6 FOCUS 0
7
TO LENS UNIT
R664
100K
R662
100K
IC603
AN78N05
(5V REG)
R667
22K
Q603
2SB710
AF 5V SWITCH
C615
0.1
C645
6V47
D610
MA153
BA602 (TO LENS UNIT)
2 FOCUS MOTOR ⊕
1 FOCUS MOTOR ⊖
TO FOCUS MOTOR
R668
2200
R665
10K
Q602
2SD1819
(AF 5V SWITCH)
R666
10K
82
K
10
11

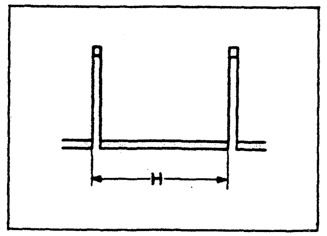
AUTO FOCUS C.B.A. (VEP28015D)


C
B
A
REF. NO. 600 SERIES
REF. NO. 60
(FOIL SIDE)
(CO
1
2
3
4
5
6
7
PIEZO
BA604
BA602
BA603
AF AMP GAIN
AF AMP BIAS
P601

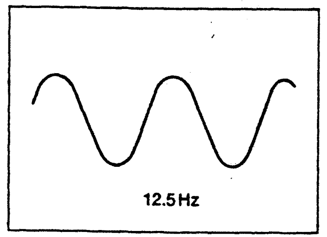
AUTO FOCUS CIRCUIT TP (Test Point) WAVE FORM(REF No. 600 Series)



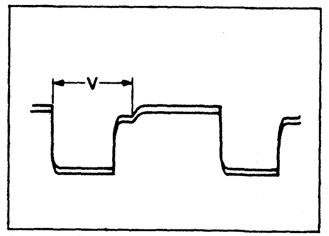
TP602 STOP
2V/20μsec. div. 5Vp-p



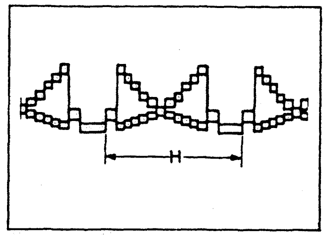
TP603 STOP
2V/20μsec. div. 5Vp-p



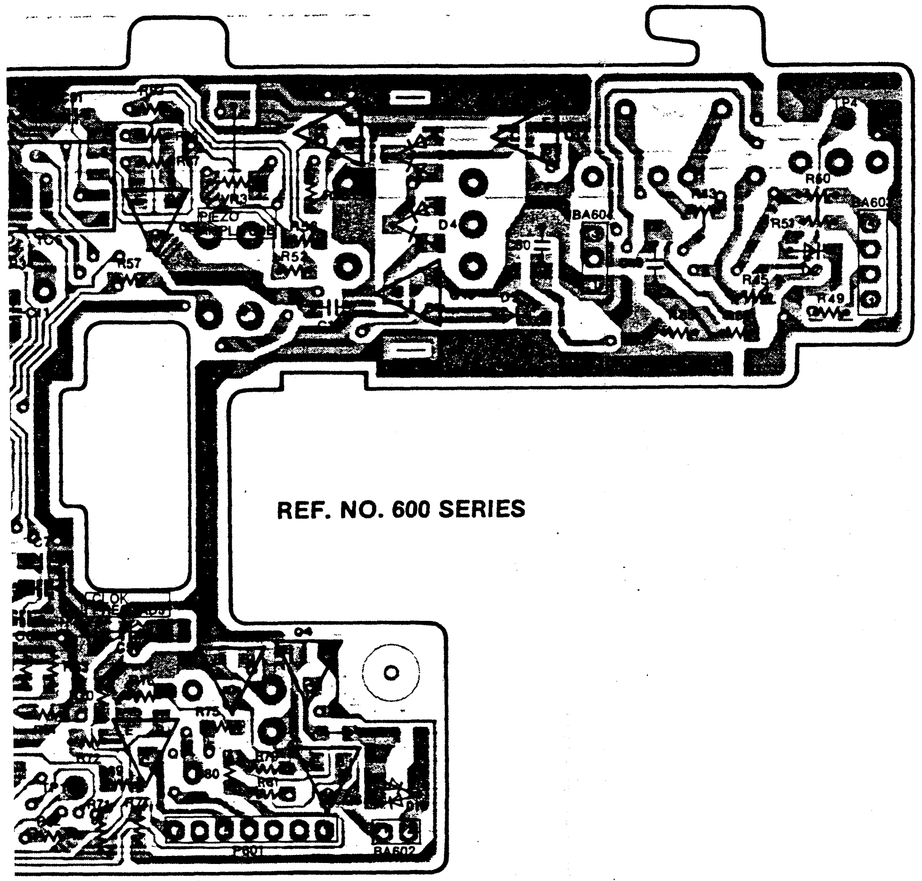
TP604 STOP
5V/20μsec. div. 70Vp-p



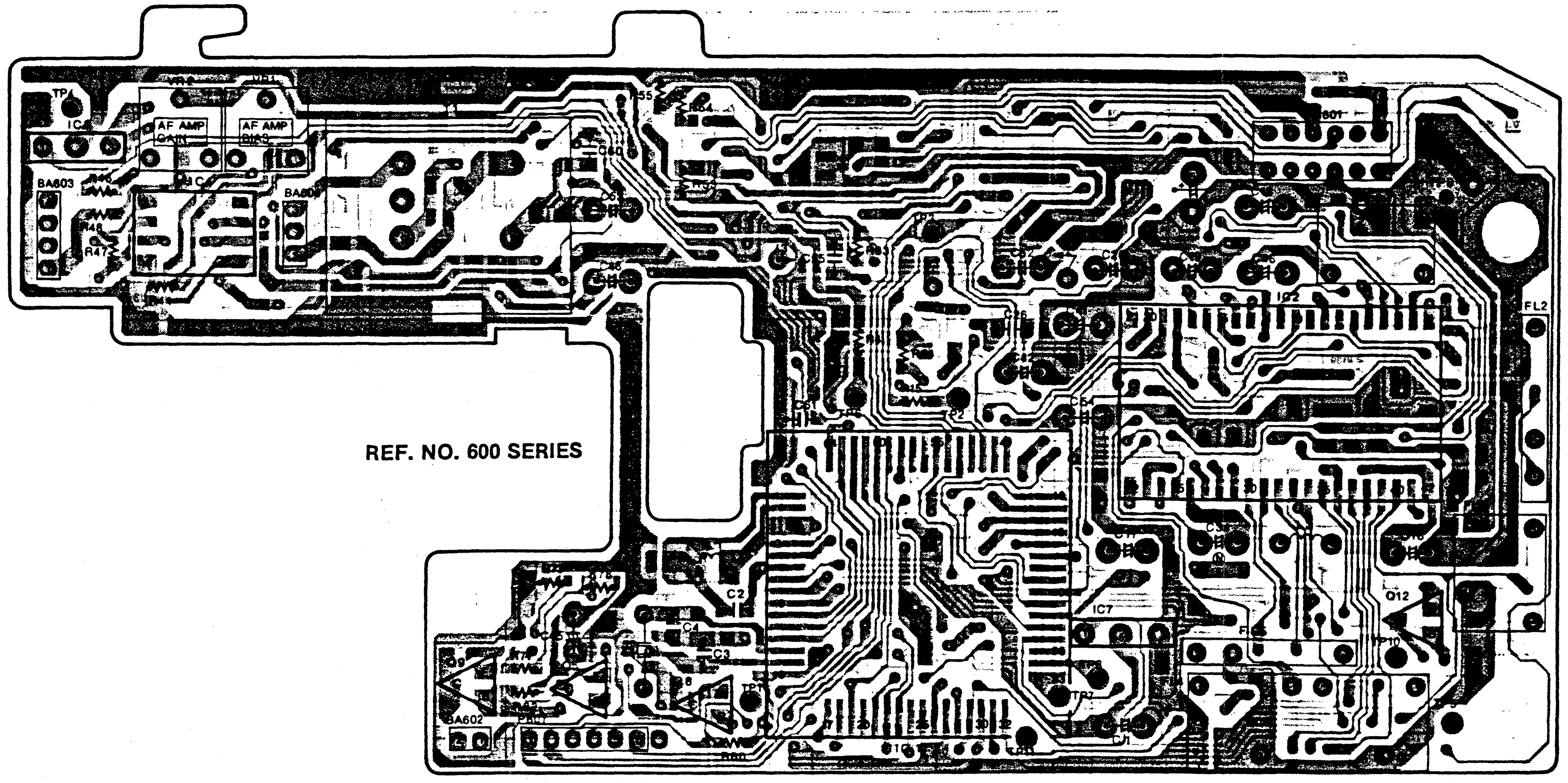
TP605 STOP
0.5V/5msec. div. 4Vp-p



TP610 STOP
0.1V/20μsec. div. 0.2Vp-p

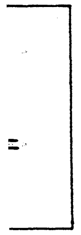

REF. NO. 600 SERIES
PIEZO
D4
BA604
R60
R53
R49
R57
R53
P601
BA602
Q4

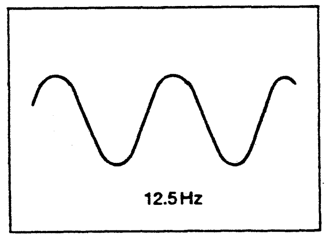
(FOIL SIDE)


REF. NO. 600 SERIES
AF AMP GAIN
AF AMP BIAS
BA603
TP4
IC7
Q12
FL2
C2
C3
BA602
B601

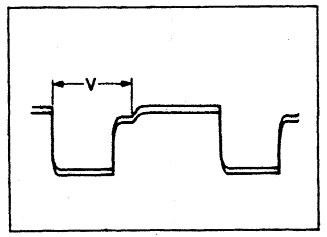
(COMPONENT SIDE)

4 5 6 7 8 9 10 11

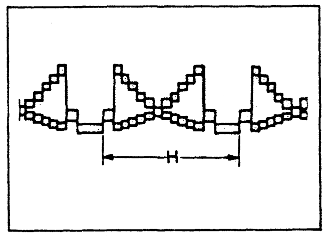




TP604 STOP
5V/20μsec. div. 70Vp-p



TP605 STOP
0.5V/5msec. div. 4Vp-p



TP610 STOP
0.1V/20μsec. div. 0.2Vp-p

AUTO FOCUS C.B.A.

Transistor	
Q601	A-4 Ⓕ
Q602	C-3 Ⓕ
Q603	C-4 Ⓕ
Q604	B-4 Ⓕ
Q605	A-8 Ⓒ
Q606	A-4 Ⓕ
Q607	B-4 Ⓕ
Q608	A-9 Ⓒ
Q609	A-8 Ⓒ
Q610	B-1 Ⓕ
Q611	B-1 Ⓕ
Q612	C-11 Ⓒ
Q613	C-5 Ⓕ
Q614	C-5 Ⓕ
Q615	B-2 Ⓕ
Q616	B-1 Ⓕ
Q617	B-2 Ⓕ
Q618	B-2 Ⓕ
Q619	B-2 Ⓕ
Q620	C-4 Ⓕ
Q621	A-3 Ⓕ

Integrated Circuit	
IC601	A-9 Ⓒ
IC602	C-11 Ⓒ
IC603	C-6 Ⓒ
IC604	C-7 Ⓒ
IC605	C-3 Ⓕ
IC606	C-3 Ⓕ
IC607	B-10 Ⓒ

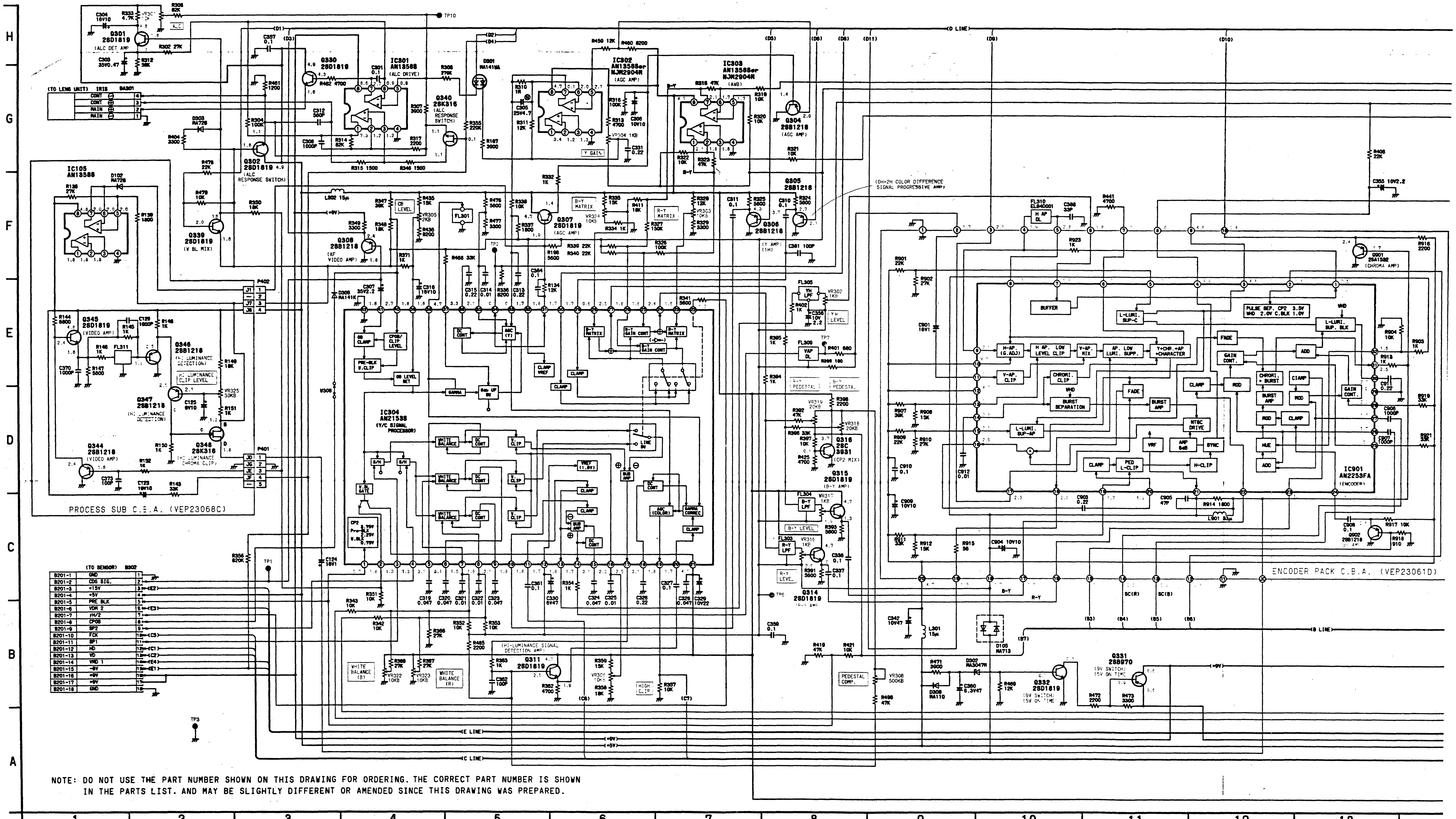
Test Point	
TP601	A-9 Ⓒ
TP601	A-3 Ⓕ
TP602	B-9 Ⓒ
TP602	B-3 Ⓕ
TP603	C-9 Ⓒ
TP603	C-3 Ⓕ
TP604	C-6 Ⓒ
TP604	C-6 Ⓕ
TP605	C-11 Ⓒ
TP605	A-1 Ⓕ
TP606	B-9 Ⓒ
TP606	B-3 Ⓕ
TP607	B-10 Ⓒ
TP607	A-2 Ⓕ
TP608	B-10 Ⓒ
TP608	A-2 Ⓕ
TP609	C-11 Ⓒ
TP609	C-1 Ⓕ
TP610	C-11 Ⓒ
TP610	A-1 Ⓕ
TP611	B-10 Ⓒ
TP611	A-2 Ⓕ

Adjustment	
VR601	C-7 Ⓒ
VR602	C-7 Ⓒ
VR603	C-4 Ⓕ
C621	C-1 Ⓕ
C656	B-4 Ⓕ

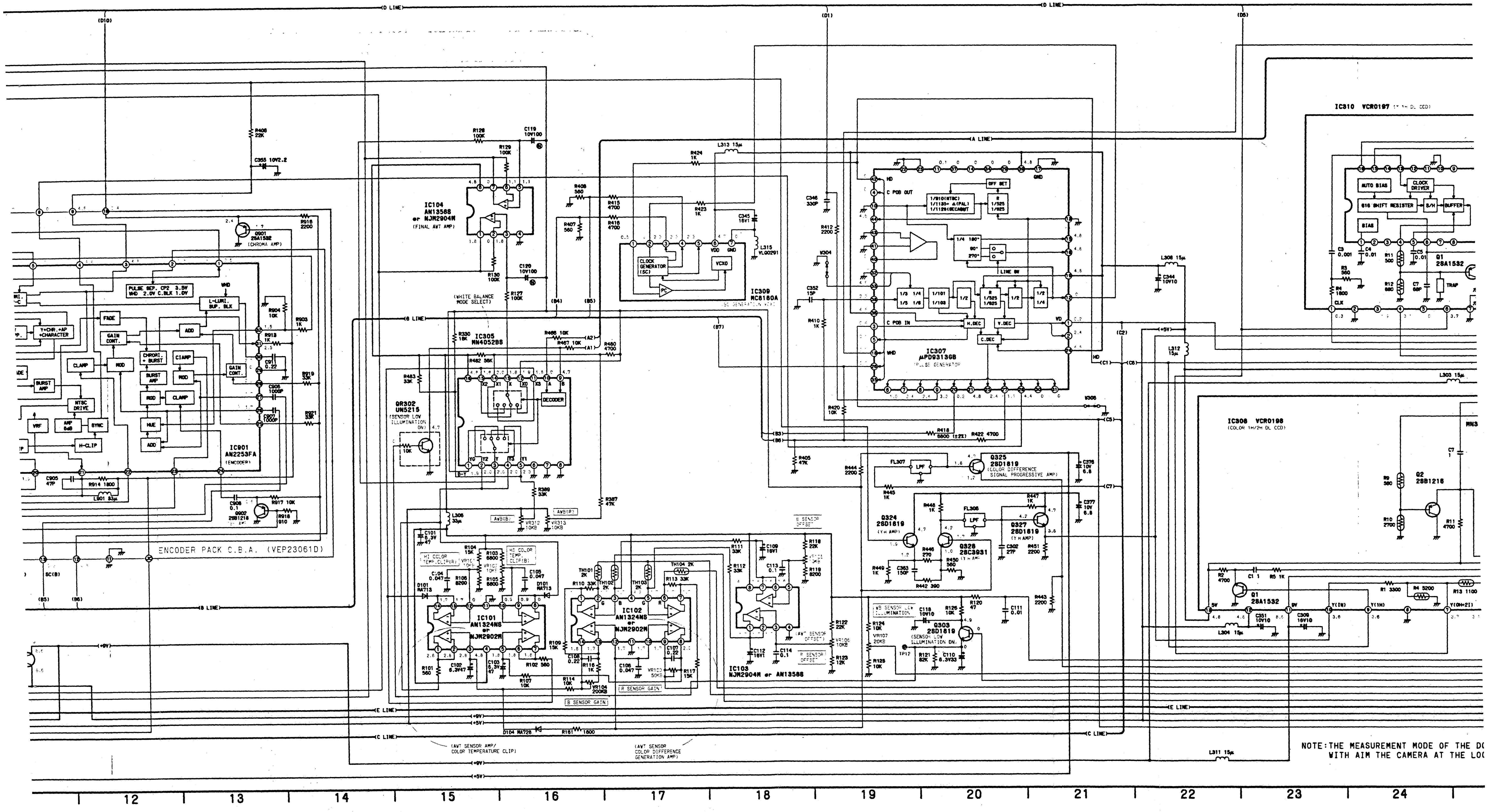
Connector	
B601	C-1 Ⓕ
B601	C-11 Ⓒ
BA602	A-8 Ⓒ
BA602	A-4 Ⓕ
BA603	C-6 Ⓕ
BA603	C-6 Ⓒ
BA604	C-7 Ⓒ
BA604	C-5 Ⓕ
P601	A-8 Ⓒ
P601	A-4 Ⓕ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

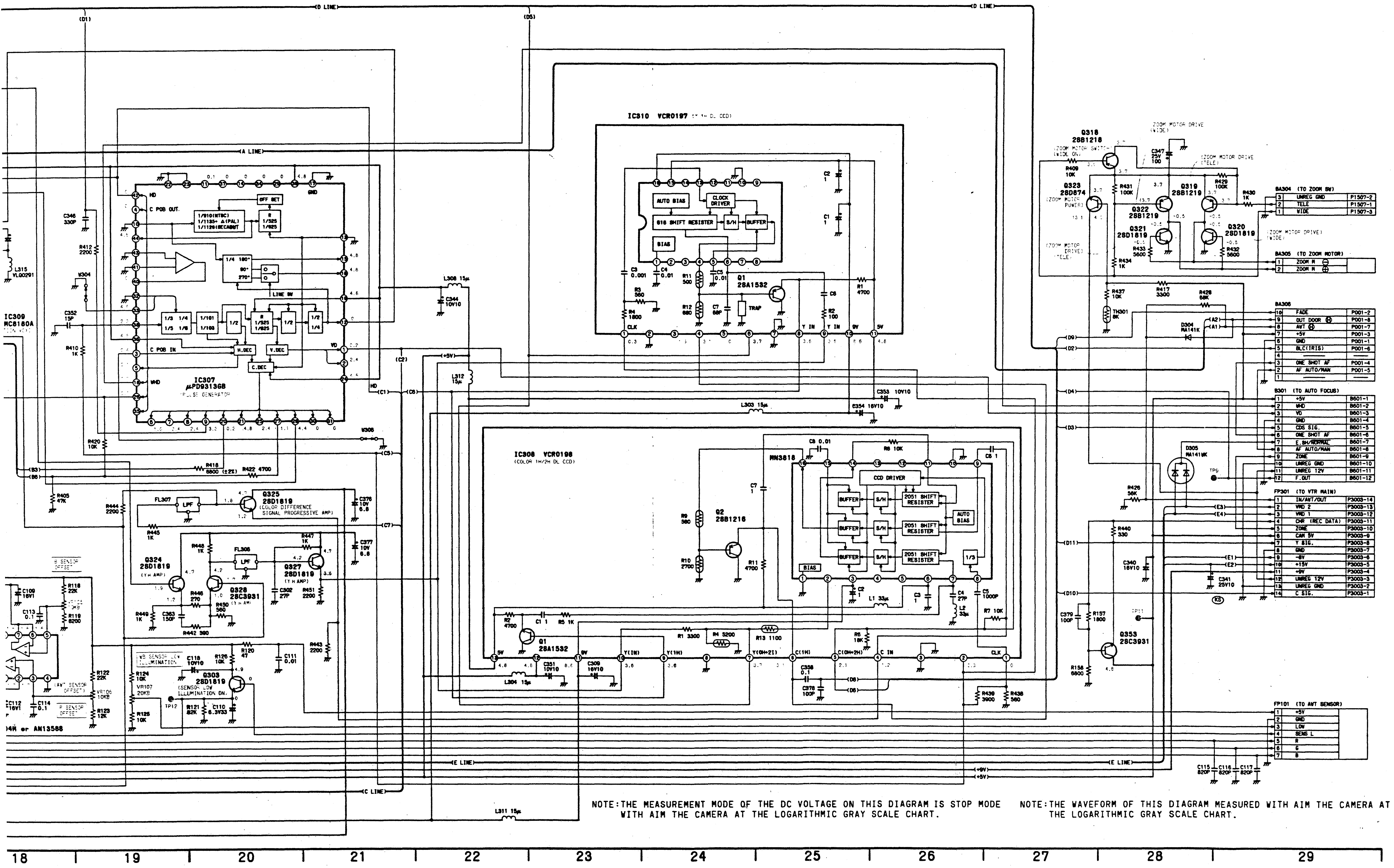
PROCESS, SUB PROCESS & ENCODER SCHEMATIC DIAGRAM


H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
TP10
Q301 2SD1819 (ALC DET AMP)
(TO LENS UNIT) IRIS 9A301
CONT
CONT
MAIN
MAIN
Q330 2SD1819
IC301 AN13568 (ALC DRIVE)
D301 MA141WA
Q340 2SK316 (ALC RESPONSE SWITCH)
IC302 AN13568or NJM2904M (AGC AMP)
IC303 AN13568or NJM2904M (AWB)
Q304 2SB1218 (AGC AMP)
Q305 2SB1218
Q306 2SB1218 (Y AMP) (1H)
Q302 2SD1819 (ALC RESPONSE SWITCH)
IC105 AN13588
Q339 2SD1819 (V BL MIX)
Q308 2SB1218 (AF VIDEO AMP)
Q307 2SD1819 (AGC AMP)
Y GAIN
B-Y MATRIX
R-Y MATRIX
(OH+2H COLOR DIFFERENCE SIGNAL PROGRESSIVE AMP)
FL310 EL840001
H AP DL
Q901 2SA1332 (CHROMA AMP)
Q345 2SD1819 (VIDEO AMP)
Q346 2SB1218 (HI LUMINANCE CLIP LEVEL)
Q347 2SB1218 (HI LUMINANCE DETECTION)
Q348 2SK316 (HI LUMINANCE CHROMA CLIP)
Q344 2SB1218 (VIDEO AMP)
PROCESS SUB C.B.A. (VEP23068C)
P402
P401
IC304 AN2153S (Y/C SIGNAL PROCESSOR)
WHITE BALANCE
DC CONT
CLIP
CLAMP
GAMMA
AGC (Y)
AGC (COLOR)
GAMMA CORREC
SUB AMP
LINE SW
VREF (1.8V)
FL305 YH LPF
Y H LEVEL
FL309 VAP DL
PEDESTAL
Q316 2SC3931 (CP2 MIX)
Q315 2SD1819 (B-Y AMP)
FL304 B-Y LPF
B-Y LEVEL
FL303 R-Y LPF
R-Y LEVEL
Q314 2SD1819
BUFFER
L-LUMI. SUP-C
PULSE SEP. CP2 3.5V VHD 2.0V C.BLK 1.0V
L-LUMI. SUP. BLK
H-AP. (G.ADJ)
H AP. LOW LEVEL CLIP
V-AP. MIX
AP. LOW LUMI. SUPP.
Y+CHR.+AP +CHARACTER
FADE
GAIN CONT.
ADD
V-AP. CLIP
CHROMI. CLIP
BURST SEPARATION
BURST AMP
CLAMP
MOD
CHROMI. + BURST
L-LUMI. SUP-AP
NTSC DRIVE
VRF
AMP 6dB
SYNC
HUE
PED L-CLIP
H-CLIP
IC901 AN2253FA (ENCODER)
Q902 2SB1218
ENCODER PACK C.B.A. (VEP23061D)
(TO SENSOR) B302
B201-1 GND
B201-2 CDS SIG.
B201-3 +15V
B201-4 +5V
B201-5 PRE BLK
B201-6 VDR 2
B201-7 fH/2
B201-8 CPOB
B201-9 SP2
B201-10 FCK
B201-11 SP1
B201-12 HD
B201-13 VD
B201-14 VRD 1
B201-15 -8V
B201-16 +9V
B201-17 +9V
B201-18 GND
TP1
TP3
WHITE BALANCE (B)
WHITE BALANCE (R)
Q311 2SD1819 (HI-LUMINANCE SIGNAL DETECTION AMP)
HIGH CLIP
PEDESTAL COMP.
D105 MA713
Q331 2SB970 (9V SWITCH) (5V ON TIME)
Q332 2SD1819 (9V SWITCH) (5V ON TIME)
E LINE
C LINE
D LINE
B LINE
(+9V)
(+5V)

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.


D LINE
A LINE
B LINE
E LINE
C LINE
+9V
+5V
IC104 AN1358S or NJM2904M (FINAL AWT AMP)
IC309 MC6180A
IC307 μPD93136B (PULSE GENERATOR)
IC310 VCR0197
IC308 VCR0198 (COLOR 1H/2H DL CCD)
IC305 MN4052BS
QR302 UN5215 (SENSOR LOW ILLUMINATION ON)
(WHITE BALANCE MODE SELECT)
IC901 AN2253FA (ENCODER)
Q901 2SA1532 (CHROMA AMP)
Q902 2SB1218
ENCODER PACK C.B.A. (VEP23061D)
IC101 AN1324NS or NJM2902M
IC102 AN1324NS or NJM2902M
IC103 NJM2904M or AN1358S
Q325 2SD1819 (COLOR DIFFERENCE SIGNAL PROGRESSIVE AMP)
Q324 2SD1819 (Y H AMP)
Q327 2SD1819 (Y H AMP)
Q326 2SC3931
Q303 2SD1819 (SENSOR LOW ILLUMINATION ON)
Q1 2SA1532
Q2 2SB1218
(AWT SENSOR AMP/ COLOR TEMPERATURE CLIP)
(AWT SENSOR COLOR DIFFERENCE GENERATION AMP)
B SENSOR GAIN
R SENSOR GAIN
AWB(B)
AWB(R)
FL307 LPF
FL306 LPF
CLOCK GENERATOR (SC)
VCXO
AUTO BIAS
CLOCK DRIVER
616 SHIFT RESISTER
S/H
BUFFER
BIAS
TRAP
12
13
14
15
16
17
18
19
20
21
22
23
24

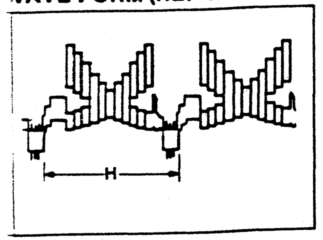
NOTE:THE MEASUREMENT MODE OF THE D
WITH AIM THE CAMERA AT THE LO


(D LINE)
(D1)
(D5)
(A LINE)
IC310 VCR0197
AUTO BIAS
CLOCK DRIVER
816 SHIFT RESISTER
S/H
BUFFER
BIAS
Q1 2SA1532
IC307 μPD9313GB
PULSE GENERATOR
OFF SET
1/910(NTSC)
1/1135+ Δ(PAL)
1/1126(SECAM)
1/4 180°
90°
270°
LINE SW
H.DEC
V.DEC
C.DEC
HD
VD
WHD
C POB OUT.
C POB IN
IC309 MC8180A
L315 VLQ0291
C346 330P
R412 2200
W304
C352 15P
R410 1K
R420 10K
R416 5800 (±2%)
R422 4700
R405 47K
R444 2200
R445 1K
FL307
LPF
Q325 2SD1819
(COLOR DIFFERENCE SIGNAL PROGRESSIVE AMP)
Q324 2SD1819 (Y H AMP)
Q328 2SC3931 (Y H AMP)
Q327 2SD1819 (Y H AMP)
FL305
R446 270
R447 1K
R448 1K
R449 1K
C363 150P
R442 390
R450 560
C302 27P
R451 2200
C376 10V 6.8
C377 10V 6.8
R443 2200
Q303 2SD1819
(SENSOR LOW ILLUMINATION ON)
VR107 20KB
R124 10K
R125 10K
R126 10K
R120 47
R121 82K
C110 6.3V33
C111 0.01
C118 10V10
TP12
R122 22K
R123 12K
R118 22K
R119 8200
VR106 10KB
C109 16V1
C113 0.1
C112 16V1
C114 0.1
AN13586
L308 15μ
C344 10V10
L312 15μ
L303 15μ
C353 10V10
C354 16V10
W305
IC308 VCR0198
(COLOR 1H/2H DL CCD)
MN3818
CCD DRIVER
BUFFER
S/H
2051 SHIFT RESISTER
AUTO BIAS
1/3
BIAS
Q2 2SB1216
Q1 2SA1532
R9 560
R10 2700
R11 4700
R8 10K
C8 0.01
C7 1
R1 3300
R4 5200
R13 1100
R5 18K
R7 10K
L1 33μ
L2 33μ
C5 1000P
C4 27P
C338 0.1
C378 100P
C351 10V10
C309 16V10
L304 15μ
R439 3900
R438 560
(E LINE)
(C LINE)
L311 15μ
Q318 2SB1218
(ZOOM MOTOR SWITCH WIDE ON)
Q323 2SD874
(ZOOM MOTOR POWER)
Q322 2SB1219
Q321 2SD1819
Q319 2SB1219
Q320 2SD1819
(ZOOM MOTOR DRIVE WIDE)
(ZOOM MOTOR DRIVE TELE)
C347 25V 100
R409 10K
R431 100K
R429 100K
R430 1K
R433 5600
R432 5600
R434 1K
R437 10K
R417 3300
R428 68K
TH301 8K
D304 MA141K
D305 MA141WK
TP9
R426 56K
R440 330
C340 16V10
C341 25V10
C379 100P
R157 1800
R158 6800
Q353 2SC3931
TP11
C115 820P
C116 820P
C117 820P
BA304 (TO ZOOM SW)
3 UNREG GND P1507-2
2 TELE P1507-1
1 WIDE P1507-3
BA305 (TO ZOOM MOTOR)
1 ZOOM M ⊖
2 ZOOM M ⊕
BA306
10 FADE P001-2
9 OUT DOOR ⊕ P001-8
8 AWT ⊕ P001-7
7 +5V P001-3
6 GND P001-1
5 BLC(IRIS) P001-6
4
3 ONE SHOT AF P001-4
2 AF AUTO/MAN P001-5
1
B301 (TO AUTO FOCUS)
1 +5V B601-1
2 WHD B601-2
3 VD B601-3
4 GND B601-4
5 CDS SIG. B601-5
6 ONE SHOT AF B601-6
7 E.SH/~~NORMAL~~ B601-7
8 AF AUTO/MAN B601-8
9 ZONE B601-9
10 UNREG GND B601-10
11 UNREG 12V B601-11
12 F.OUT B601-12
FP301 (TO VTR MAIN)
1 IN/AWT/OUT P3003-14
2 WHD 2 P3003-13
3 WHD 1 P3003-12
4 CHR (REC DATA) P3003-11
5 ZONE P3003-10
6 CAM 5V P3003-9
7 Y SIG. P3003-8
8 GND P3003-7
9 -8V P3003-6
10 +15V P3003-5
11 +9V P3003-4
12 UNREG 12V P3003-3
13 UNREG GND P3003-2
14 C SIG. P3003-1
FP101 (TO AWT SENSOR)
1 +5V
2 GND
3 LOW
4 SENS L
5 R
6 G
7 B
(+9V)
(+5V)
18
19
20
21
22
23
24
25
26
27
28
29

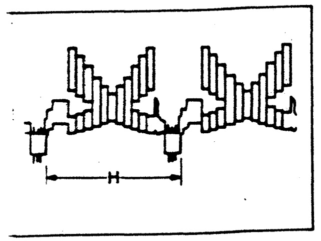
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

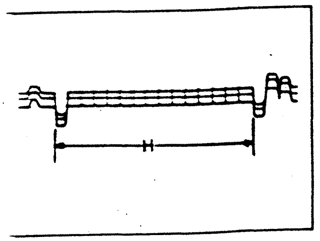
PROCESS MAIN CIRCUIT TP (Test Point)
WAVE FORM (REF No. 300 Series)



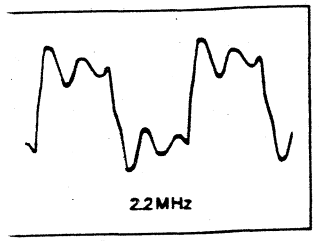
TP301 STOP
1 V/20µsec. div. 0.35 Vp-p



TP302 STOP
1 V/20µsec. div. 0.3 Vp-p

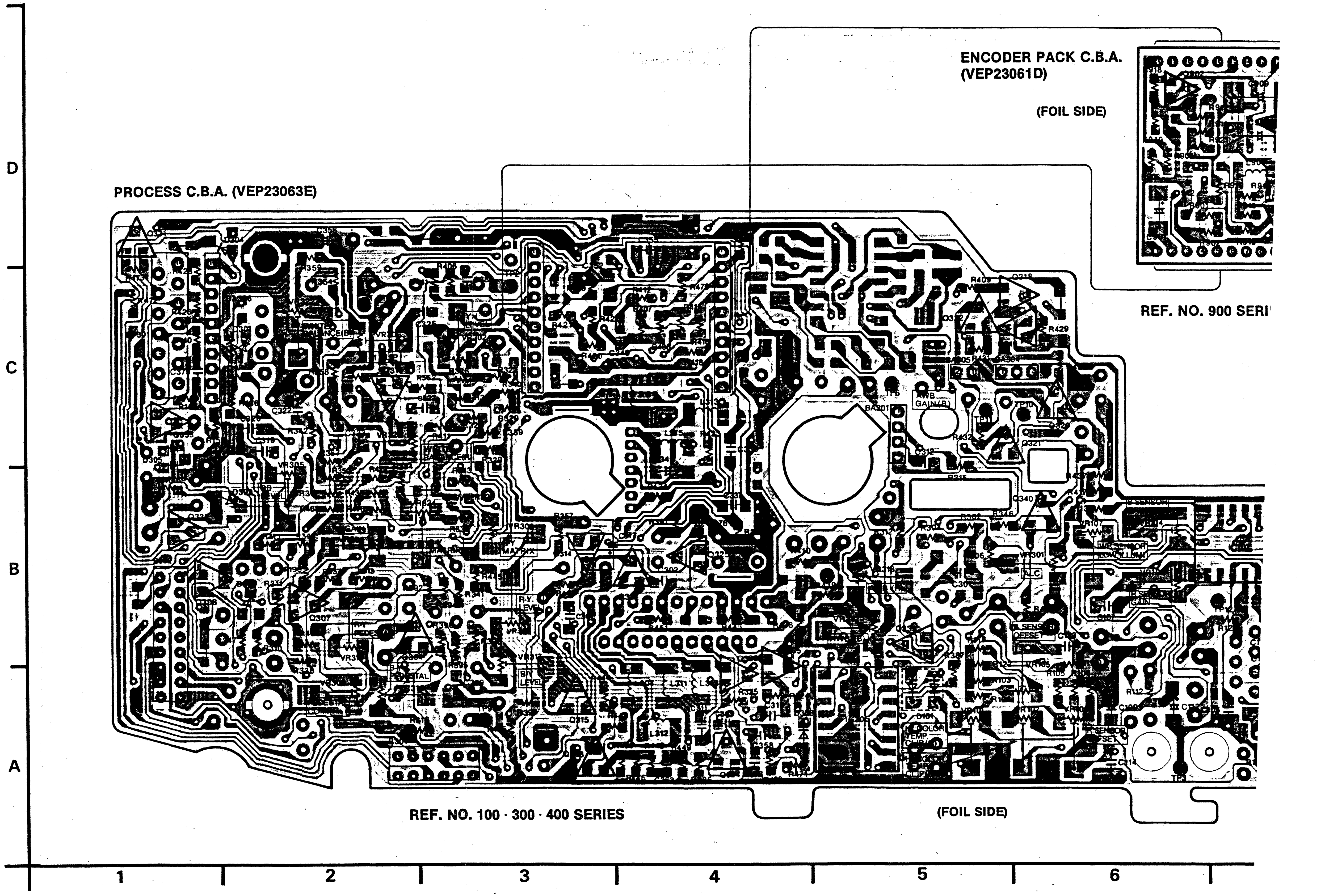


TP307 STOP
50mV/20µsec. div. 50mVp-p

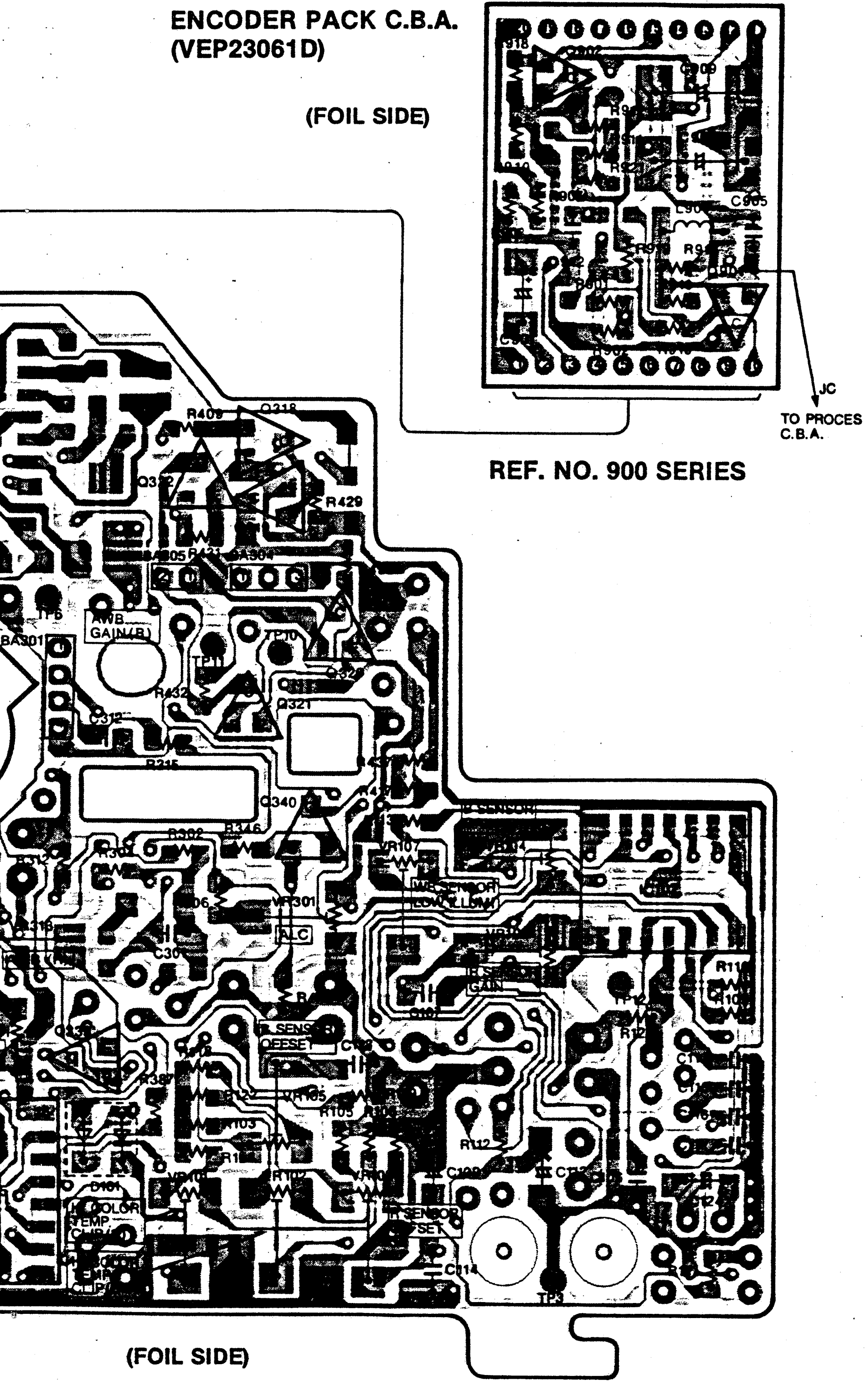


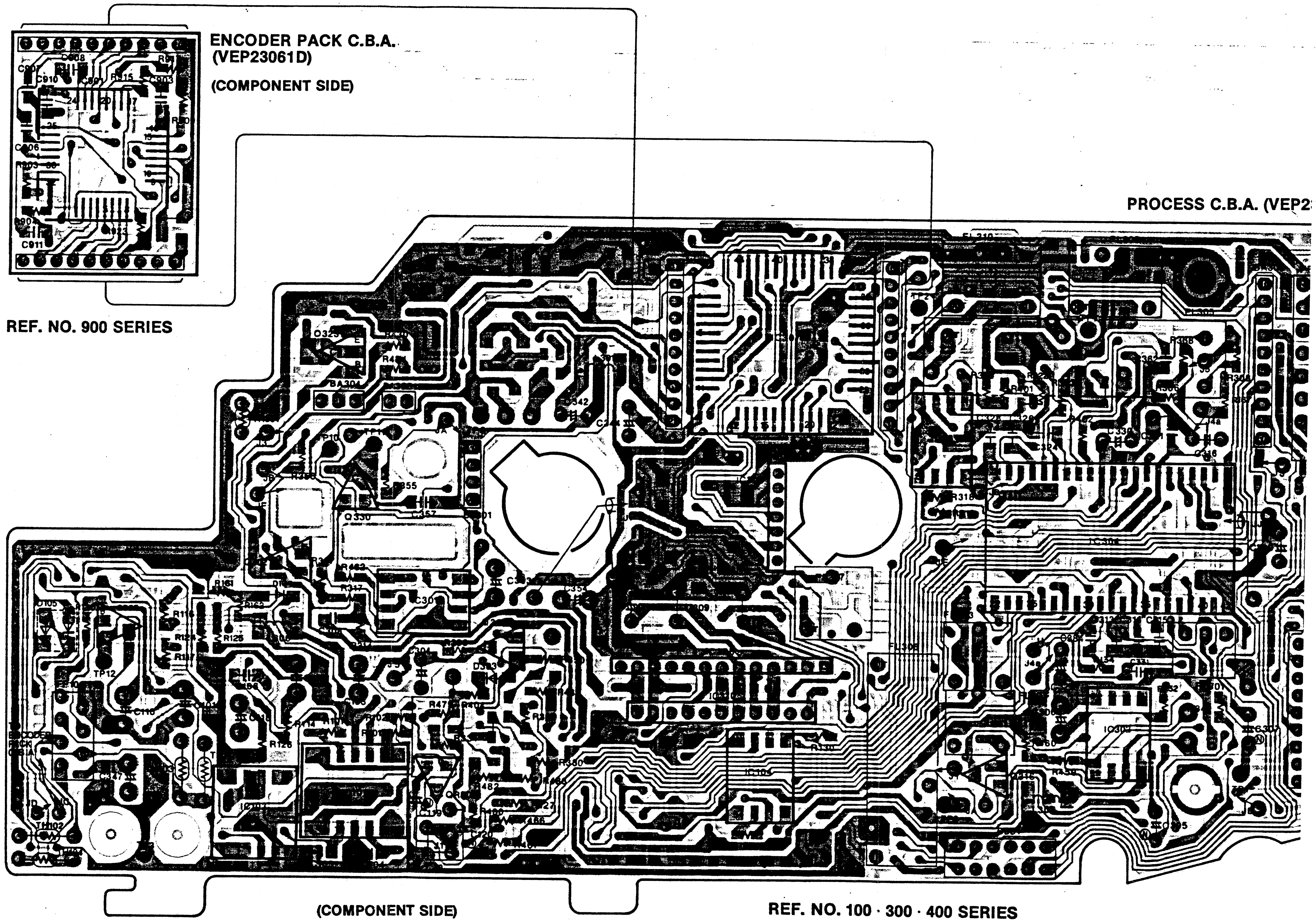
TP308 STOP
0.2V/50µsec. div. 8Vp-p

PROCESS C.B.A. (VEP23063E), SUB PROCESS C.B.A. (VEP23068C) & ENCODER PACK C.B.A. (VEP23061D)


ENCODER PACK C.B.A.
(VEP23061D)
(FOIL SIDE)
REF. NO. 900 SERI
PROCESS C.B.A. (VEP23063E)
REF. NO. 100 · 300 · 400 SERIES
(FOIL SIDE)
D
C
B
A
1
2
3
4
5
6

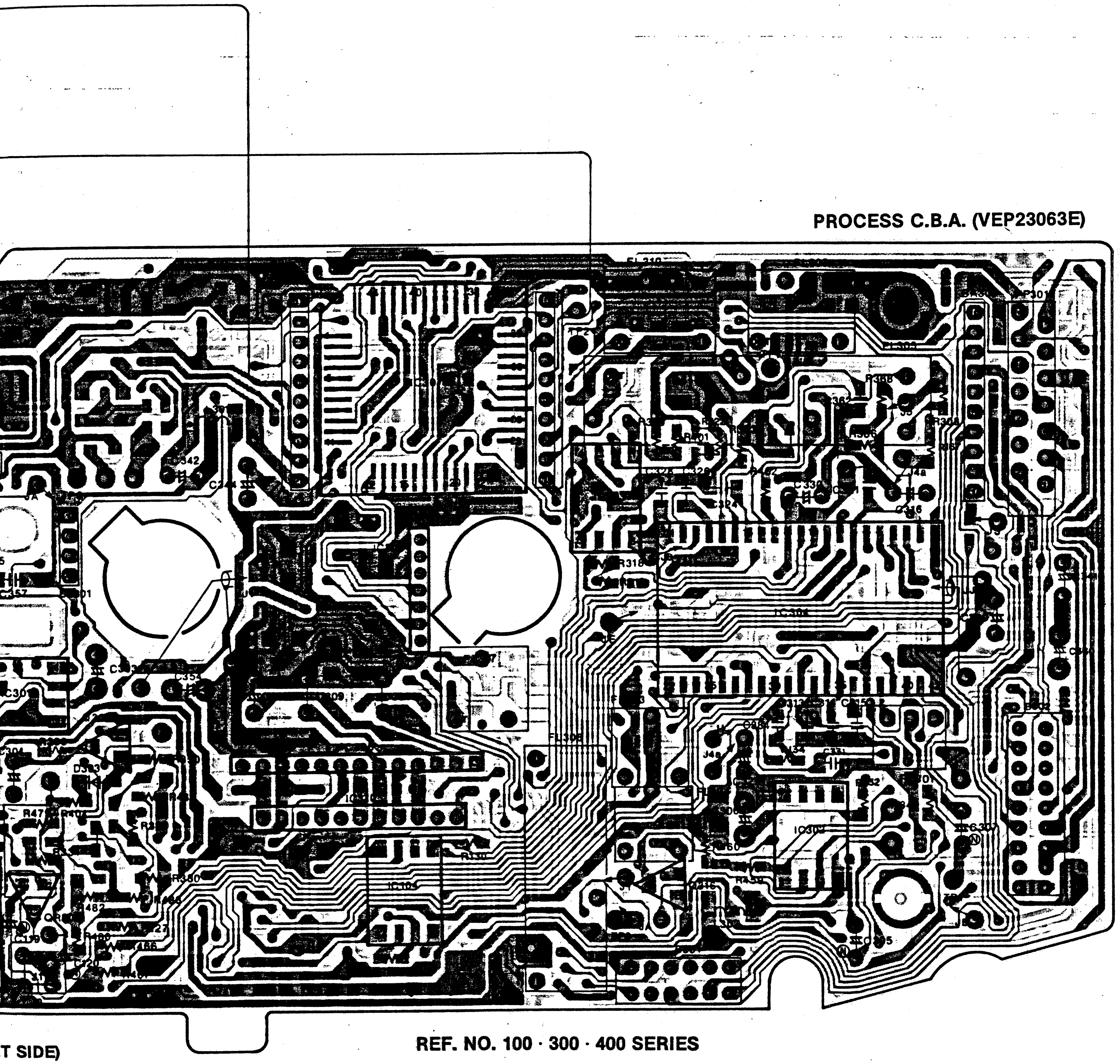
DER PACK C.B.A. (VEP23061D)


ENCODER PACK C.B.A.
(VEP23061D)
(FOIL SIDE)
REF. NO. 900 SERIES
JC
TO PROCES
C.B.A.
R409
Q318
R429
TP10
AWB GAIN(B)
R432
Q321
C340
VR301
ALC
WB SENSOR
SENSOR OFFSET
COLOR TEMP
TP3
(FOIL SIDE)


ENCODER PACK C.B.A.
(VEP23061D)
(COMPONENT SIDE)
REF. NO. 900 SERIES
PROCESS C.B.A. (VEP2
Q325
BA304
TP10
Q330
R355
C357
TP12
C110
FL306
IC301
IC303
FL310
R316
(COMPONENT SIDE)
REF. NO. 100 · 300 · 400 SERIES

5 | 6 | 7 | 8 | 9 | 10 | 11 | 12

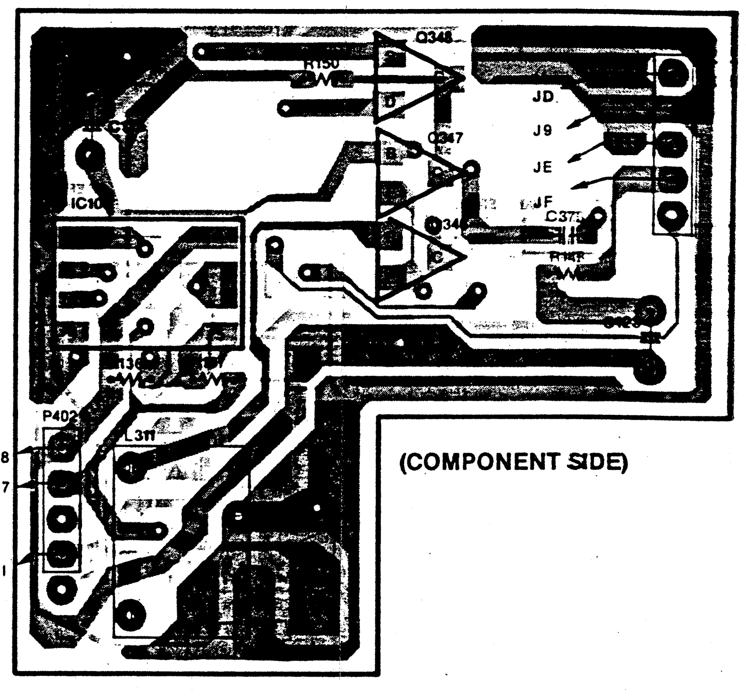
PROCESS C.B.A. (VEP23063E)


IC306
IC302
IC104
IC305
FL308
FP301
C316
R318
C324
C342
VR306
R368
Q339
R401
R130
Q353

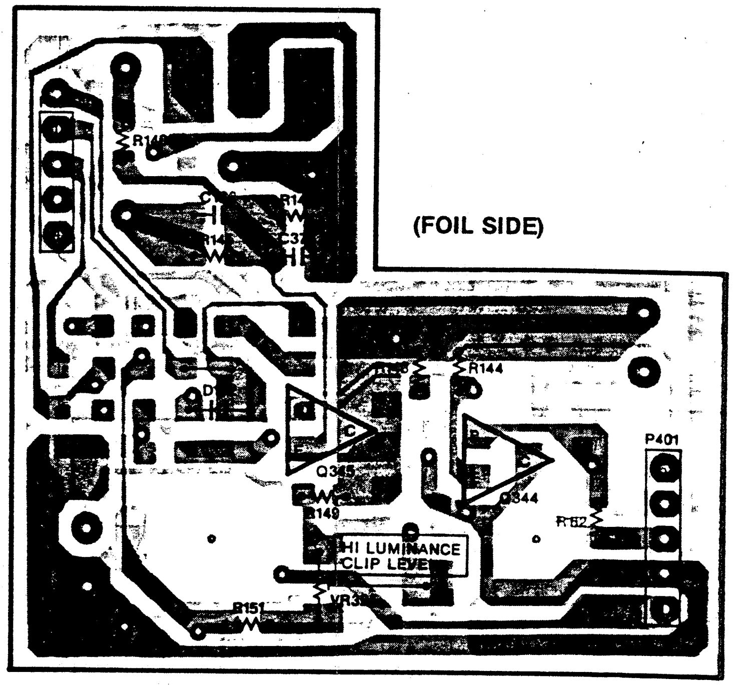
T SIDE)

REF. NO. 100 · 300 · 400 SERIES

SUB PROCESS C.B.A. (VEP23068C)


Q348
R150
Q347
Q346
JD
J9
JE
JF
C373
R148
IC105
P402
L311
J8
J7
J1

(COMPONENT SIDE)


R148
R144
Q345
Q344
R149
R152
R151
VR325
P401
HI LUMINANCE CLIP LEVEL

(FOIL SIDE)

SUB PROCESS C.B.A. (VEP23068C)

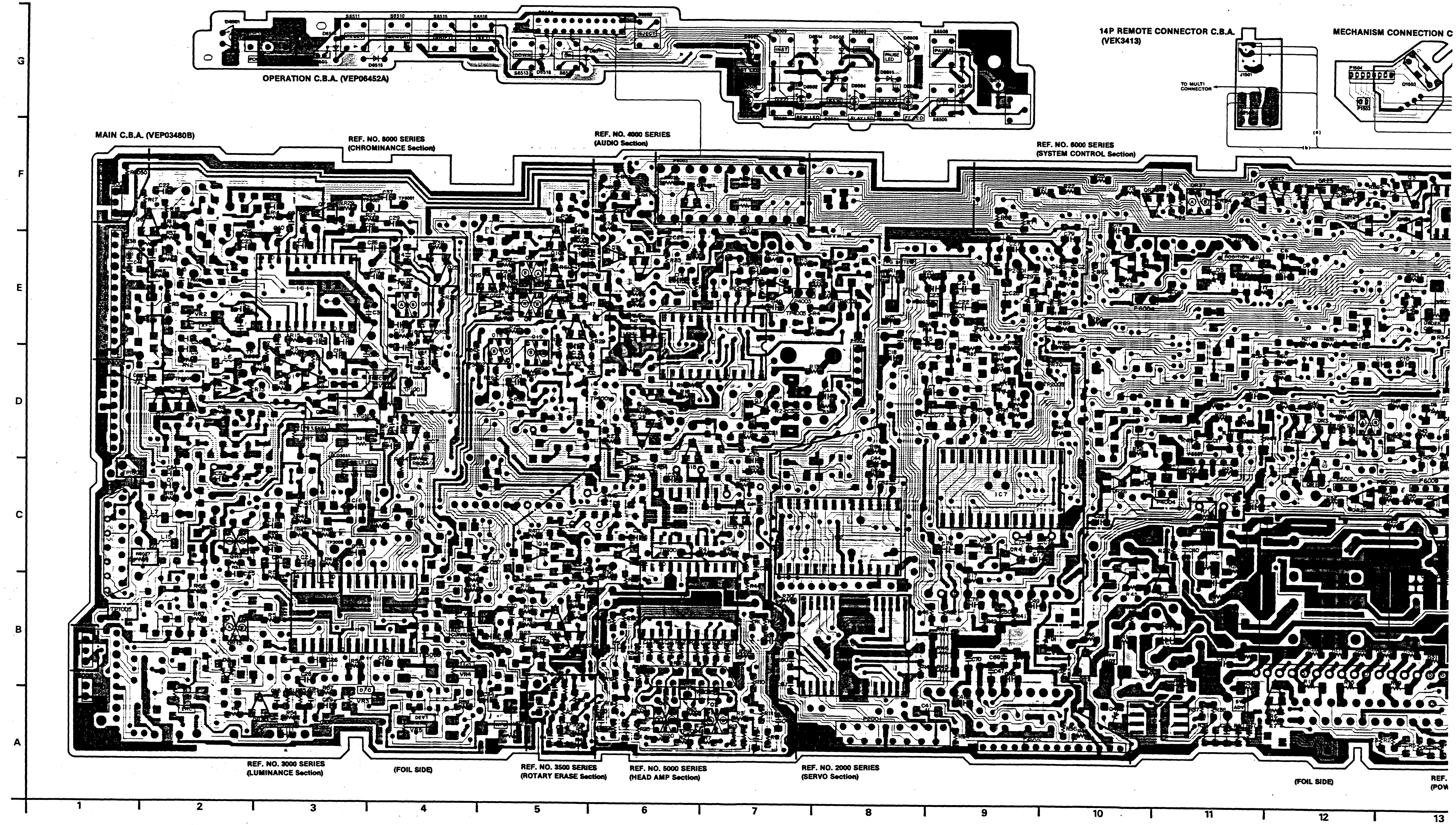
10	11	12	13	14	15

PROCESS C.B.A. & ENCODER PACK C.B.A. & SUB PROCESS C.B.A.

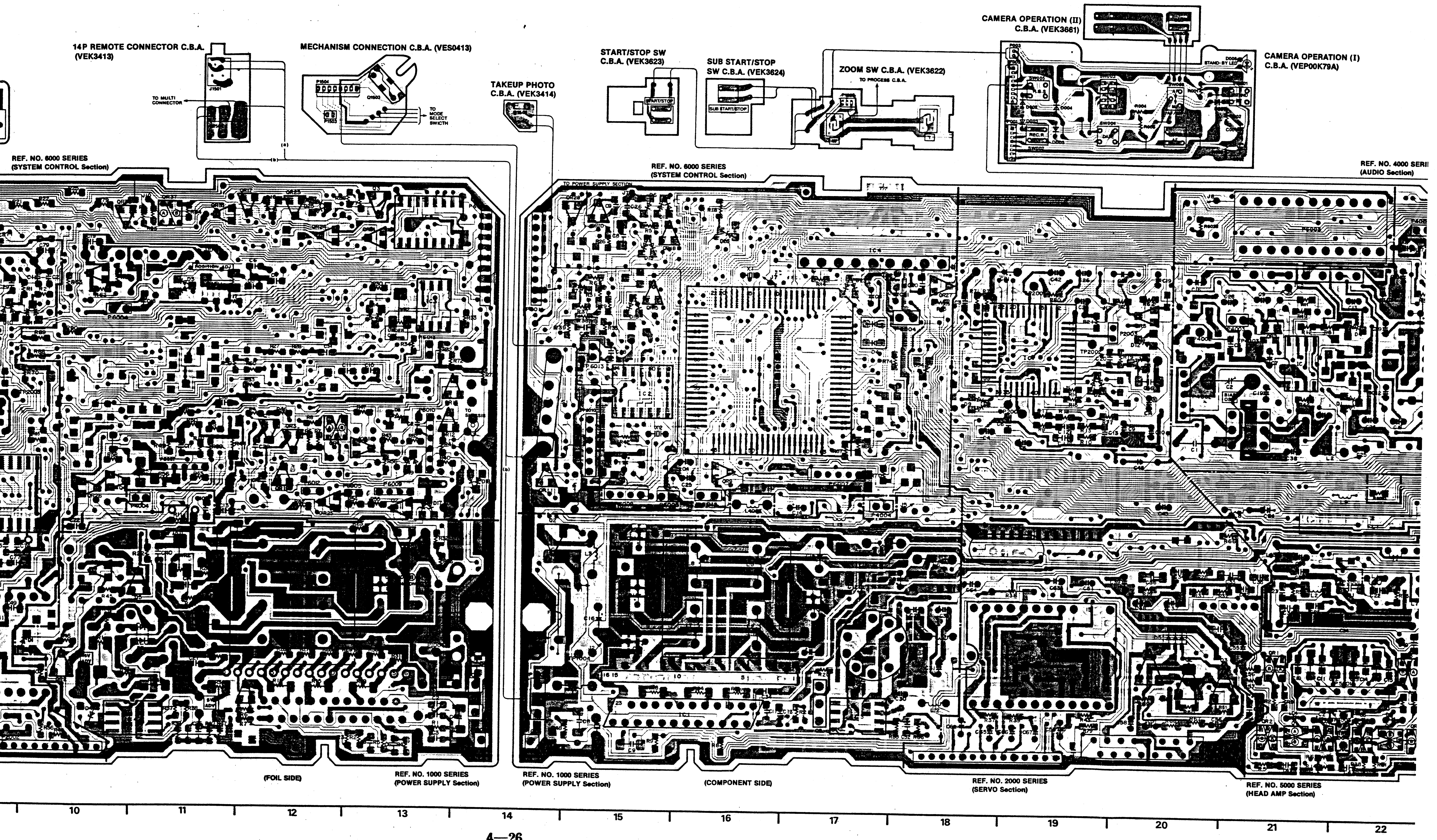
Transistor		
Q301	B-9	Ⓒ
Q302	B-8	Ⓒ
Q303	B-8	Ⓒ
Q304	B-2	Ⓕ
Q305	B-4	Ⓕ
Q306	B-4	Ⓕ
Q307	B-2	Ⓕ
Q308	B-1	Ⓕ
Q311	C-2	Ⓕ
Q314	B-3	Ⓕ
Q315	A-3	Ⓕ
Q316	A-12	Ⓒ
Q318	C-6	Ⓕ
Q319	C-6	Ⓕ
Q320	C-6	Ⓕ
Q321	C-5	Ⓕ
Q322	C-5	Ⓕ
Q323	C-9	Ⓒ
Q324	A-4	Ⓕ
Q325	B-4	Ⓕ
Q327	B-4	Ⓕ
Q328	A-3	Ⓕ
Q330	C-9	Ⓒ
Q331	D-1	Ⓕ
Q332	B-1	Ⓕ
Q339	B-5	Ⓕ
Q340	B-6	Ⓕ
Q344	A-15	Ⓕ
Q345	A-14	Ⓕ
Q346	D-15	Ⓒ
Q347	D-15	Ⓒ
Q348	D-15	Ⓒ
Q353	C-1	Ⓕ
Q901	D-7	Ⓕ
Q902	D-6	Ⓕ
Transistor & Resistor		
QR302	A-9	Ⓒ
Integrated Circuit		
IC101	A-9	Ⓒ
IC102	B-7	Ⓕ
IC103	A-8	Ⓒ
IC104	A-11	Ⓒ
IC105	D-14	Ⓒ
IC301	B-9	Ⓒ
IC302	B-12	Ⓒ
IC303	C-11	Ⓒ
IC304	B-12	Ⓒ
IC305	A-5	Ⓕ
IC307	C-11	Ⓒ
IC308	B-10	Ⓒ
IC309	C-11	Ⓒ
IC310	B-10	Ⓒ
IC901	D-8	Ⓒ
Test Point		
TP1	A-13	Ⓒ
TP2	C-11	Ⓒ
TP2	C-3	Ⓕ
TP3	A-8	Ⓒ
TP3	A-6	Ⓕ
TP6	C-9	Ⓒ
TP6	C-5	Ⓕ
TP7	C-12	Ⓒ
TP7	C-2	Ⓕ
TP8	B-5	Ⓕ
TP9	A-11	Ⓒ
TP9	A-3	Ⓕ
TP10	C-9	Ⓒ
TP10	C-6	Ⓕ
TP11	C-9	Ⓒ
TP11	C-5	Ⓕ
TP12	B-8	Ⓒ
TP12	B-7	Ⓕ
Adjustment		
VR101	A-5	Ⓕ
VR102	A-6	Ⓕ
VR103	B-6	Ⓕ
VR104	B-6	Ⓕ
VR105	A-6	Ⓕ
VR106	A-6	Ⓕ
VR107	B-6	Ⓕ
VR301	B-6	Ⓕ
VR302	C-3	Ⓕ
VR303	B-3	Ⓕ
VR304	B-2	Ⓕ
VR305	B-2	Ⓕ
VR306	C-2	Ⓕ
VR308	A-2	Ⓕ
VR312	B-5	Ⓕ
VR313	B-5	Ⓕ
VR316	B-3	Ⓕ
VR317	B-3	Ⓕ
VR318	A-2	Ⓕ
VR319	B-2	Ⓕ
VR322	C-2	Ⓕ
VR323	C-2	Ⓕ
VR324	B-3	Ⓕ
VR325	A-14	Ⓕ
Connector		
B301	A-12	Ⓒ
B301	A-2	Ⓕ
B302	B-13	Ⓒ
B302	B-1	Ⓕ
BA301	C-9	Ⓒ
BA304	C-9	Ⓒ
BA304	C-5	Ⓕ
BA305	C-9	Ⓒ
BA305	C-5	Ⓕ
BA306	D-13	Ⓒ
BA306	C-1	Ⓕ
FP301	D-13	Ⓒ
FP301	C-1	Ⓕ
P401	D-15	Ⓒ
P401	A-15	Ⓕ
P402	C-14	Ⓒ
P402	B-14	Ⓕ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

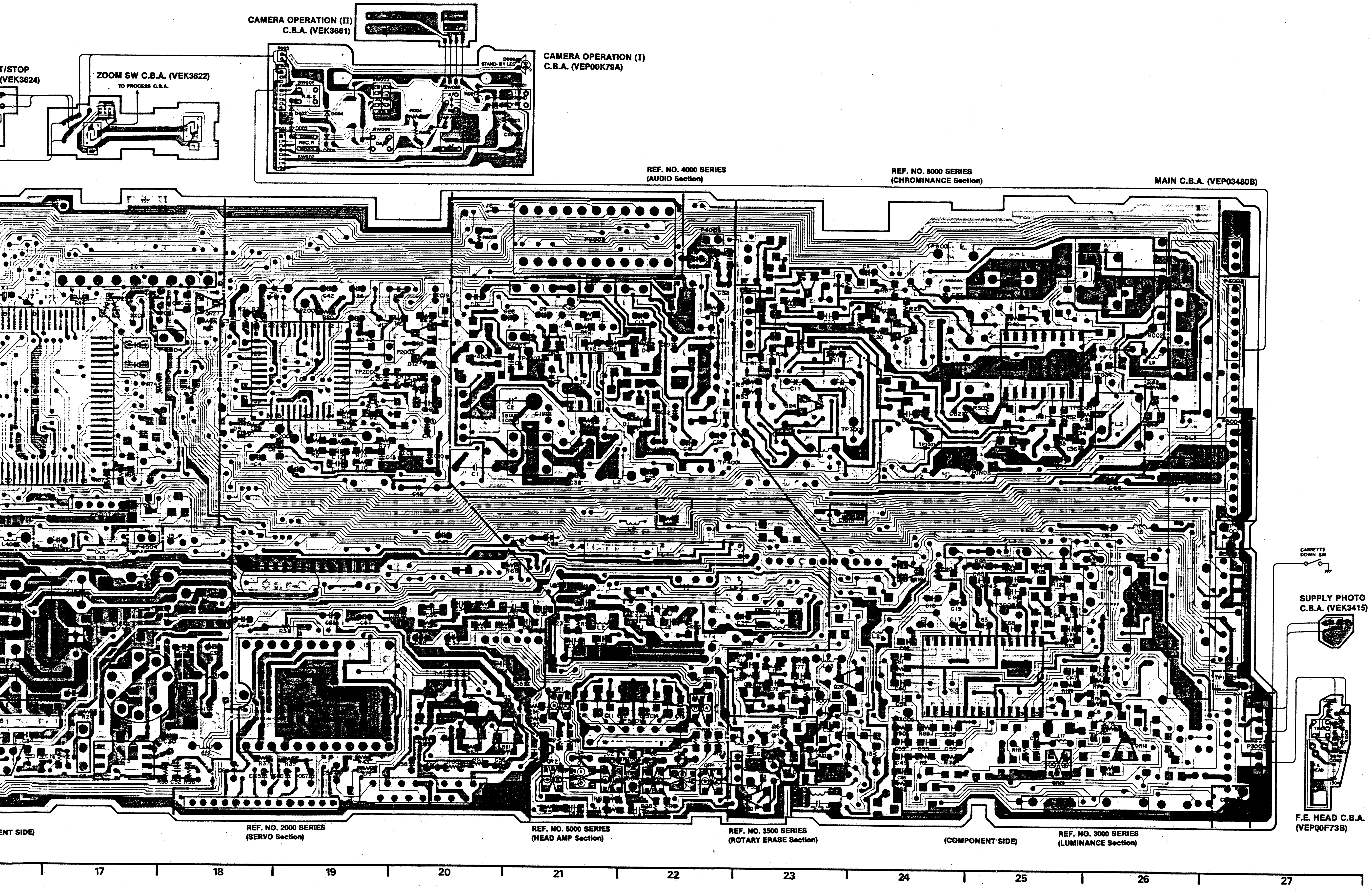
MAIN [POWER SUPPLY, SYSTEM CONTROL, SERVO, LUMINANCE & CHROMINANCE, HEAD AMP, AUDIO, ROTARY ERASE] C.B.A. (VEP03480B),


OPERATION C.B.A. (VEP06452A)
14P REMOTE CONNECTOR C.B.A. (VEK3413)
TO MULTI CONNECTOR
J1501
MECHANISM CONNECTION C
P1504
P1503
MAIN C.B.A. (VEP03480B)
REF. NO. 8000 SERIES (CHROMINANCE Section)
REF. NO. 4000 SERIES (AUDIO Section)
REF. NO. 6000 SERIES (SYSTEM CONTROL Section)
REF. NO. 3000 SERIES (LUMINANCE Section)
(FOIL SIDE)
REF. NO. 3500 SERIES (ROTARY ERASE Section)
REF. NO. 5000 SERIES (HEAD AMP Section)
REF. NO. 2000 SERIES (SERVO Section)
(FOIL SIDE)
REF.
(POW
IC7
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13

DIO, ROTARY ERASE] C.B.A. (VEP03480B), OPERATION C.B.A. (VEP06452A), CAMERA OPERATION (I) C.B.A. (VEP00K79A) & CAMERA OPERATION (II)


14P REMOTE CONNECTOR C.B.A. (VEK3413)
TO MULTI CONNECTOR
MECHANISM CONNECTION C.B.A. (VES0413)
TO MODE SELECT SWICTH
TAKEUP PHOTO C.B.A. (VEK3414)
START/STOP SW C.B.A. (VEK3623)
SUB START/STOP SW C.B.A. (VEK3624)
ZOOM SW C.B.A. (VEK3622)
TO PROCESS C.B.A.
CAMERA OPERATION (II) C.B.A. (VEK3661)
CAMERA OPERATION (I) C.B.A. (VEP00K79A)
STAND-BY LED
REF. NO. 6000 SERIES (SYSTEM CONTROL Section)
REF. NO. 6000 SERIES (SYSTEM CONTROL Section)
REF. NO. 4000 SERIES (AUDIO Section)
TO POWER SUPPLY SECTION
(FOIL SIDE)
REF. NO. 1000 SERIES (POWER SUPPLY Section)
REF. NO. 1000 SERIES (POWER SUPPLY Section)
(COMPONENT SIDE)
REF. NO. 2000 SERIES (SERVO Section)
REF. NO. 5000 SERIES (HEAD AMP Section)
10
11
12
13
14
15
16
17
18
19
20
21
22

AMERA OPERATION (I) C.B.A. (VEP00K79A) & CAMERA OPERATION (II) C.B.A. (VEK3661)


CAMERA OPERATION (II)
C.B.A. (VEK3661)
CAMERA OPERATION (I)
C.B.A. (VEP00K79A)
T/STOP
VEK3624)
ZOOM SW C.B.A. (VEK3622)
TO PROCESS C.B.A.
STAND-BY LED
REF. NO. 4000 SERIES
(AUDIO Section)
REF. NO. 8000 SERIES
(CHROMINANCE Section)
MAIN C.B.A. (VEP03480B)
CASSETTE
DOWN SW
SUPPLY PHOTO
C.B.A. (VEK3415)
F.E. HEAD C.B.A.
(VEP00F73B)
ENT SIDE)
REF. NO. 2000 SERIES
(SERVO Section)
REF. NO. 5000 SERIES
(HEAD AMP Section)
REF. NO. 3500 SERIES
(ROTARY ERASE Section)
(COMPONENT SIDE)
REF. NO. 3000 SERIES
(LUMINANCE Section)
17
18
19
20
21
22
23
24
25
26
27

LUMINANCE, CHROMINANCE & HEAD AMP Section

Transistor		
Q3001	E-5	Ⓕ
Q3002	E-5	Ⓕ
Q3006	D-2	Ⓕ
Q3007	D-2	Ⓕ
Q3018	E-5	Ⓕ
Q3019	E-5	Ⓕ
Q3024	D-23	Ⓒ
Q3025	E-4	Ⓕ
Q3026	B-23	Ⓒ
Q3036	B-5	Ⓕ
Q3037	B-5	Ⓕ
Q3038	B-23	Ⓒ
Q5001	A-21	Ⓒ
Q5002	A-7	Ⓕ
Q5003	A-21	Ⓒ
Q5007	A-22	Ⓒ
Q5008	A-6	Ⓕ
Q5009	A-22	Ⓒ
Q5013	C-6	Ⓕ
Q5014	C-5	Ⓕ
Q5015	C-7	Ⓕ
Q5018	C-6	Ⓕ
Q8001	D-3	Ⓕ
Q8002	D-3	Ⓕ
Q8004	D-2	Ⓕ
Q8005	E-24	Ⓒ
Q8006	F-2	Ⓕ
Q8007	F-3	Ⓕ
Q8010	E-5	Ⓕ
Q8011	E-5	Ⓕ
Q8014	F-23	Ⓒ

Transistor & Resistor		
QR3001	E-5	Ⓕ
QR3006	D-26	Ⓒ
QR3007	C-2	Ⓕ
QR3013	B-2	Ⓕ
QR3018	B-26	Ⓒ
QR3019	C-24	Ⓒ
QR3027	E-5	Ⓕ
QR3028	A-25	Ⓒ
QR3030	A-3	Ⓕ
QR3035	D-4	Ⓕ
QR3038	E-2	Ⓕ
QR3044	E-6	Ⓕ
QR5001	B-21	Ⓒ
QR5002	A-21	Ⓒ
QR5003	B-22	Ⓒ
QR5004	A-22	Ⓒ
QR5008	C-6	Ⓕ
QR8001	E-5	Ⓕ
QR8003	E-4	Ⓕ
QR8004	E-4	Ⓕ
QR8005	D-25	Ⓒ
QR8007	D-3	Ⓕ

Integrated Circuit		
IC3001	B-3	Ⓕ
IC3002	C-25	Ⓒ
IC5001	B-6	Ⓕ
IC8001	E-3	Ⓕ
IC8002	E-25	Ⓕ

Test Point		
TP3001	C-22	Ⓒ
TP3001	C-6	Ⓕ
TP3002	D-23	Ⓒ
TP3002	D-4	Ⓕ
TP3003	A-22	Ⓒ
TP3003	A-6	Ⓕ
TP3004	A-22	Ⓒ
TP3004	A-6	Ⓕ
TP3005	B-24	Ⓒ
TP3005	B-4	Ⓕ
TP3007	B-23	Ⓒ
TP3007	B-5	Ⓕ
TP3008	C-25	Ⓒ
TP3008	C-3	Ⓕ
TP8001	F-24	Ⓒ
TP8001	F-4	Ⓕ
TP8002	E-26	Ⓒ
TP8002	E-2	Ⓕ
TP8003	D-25	Ⓒ
TP8003	D-2	Ⓕ
TP GND 3	D-25	Ⓒ
TP GND 3	D-3	Ⓕ

Adjustment		
VR3001	C-3	Ⓕ
VR3002	A-5	Ⓕ
VR3003	A-3	Ⓕ
VR3004	B-4	Ⓕ
VR3005	A-4	Ⓕ
VR3007	D-3	Ⓕ
VR3008	B-4	Ⓕ
VR3012	A-2	Ⓕ
VR8001	D-4	Ⓕ
VR8002	E-2	Ⓕ

Connector		
P3002	E-23	Ⓒ
P3002	E-5	Ⓕ
P3003	C-27	Ⓒ
P3003	C-1	Ⓕ
P3004	D-27	Ⓒ
P3004	D-1	Ⓕ
P3005	B-27	Ⓒ
P3005	B-1	Ⓕ
P5001	B-22	Ⓒ
P5001	B-6	Ⓕ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

SYSTEM CONTROL Section

Transistor		
Q1501	G-14	
Q1502	C-27	
Q1503	G-13	
Q3501	A-23	Ⓒ
Q3502	A-23	Ⓒ
Q3503	A-23	Ⓒ
Q6001	D-12	Ⓕ
Q6002	C-13	Ⓕ
Q6003	F-13	Ⓕ
Q6004	C-10	Ⓕ
Q6005	E-10	Ⓕ

Transistor & Resistor		
QR6003	D-12	Ⓕ
QR6004	D-12	Ⓕ
QR6009	C-16	Ⓒ
QR6010	F-15	Ⓒ
QR6011	C-14	Ⓒ
QR6012	D-13	Ⓕ
QR6013	D-13	Ⓕ
QR6014	F-13	Ⓕ
QR6015	E-15	Ⓒ
QR6016	D-13	Ⓕ
QR6017	F-12	Ⓕ
QR6018	F-15	Ⓒ
QR6019	C-12	Ⓕ
QR6023	F-12	Ⓕ
QR6024	F-12	Ⓕ
QR6025	C-12	Ⓕ
QR6026	C-10	Ⓕ
QR6027	E-18	Ⓒ
QR6028	F-15	Ⓒ
QR6033	F-6	Ⓕ
QR6035	F-11	Ⓕ
QR6036	F-10	Ⓕ
QR6037	F-11	Ⓕ

Integrated Circuit		
IC6001	D-16	Ⓒ
IC6002	D-15	Ⓒ
IC6003	E-13	Ⓕ
IC6004	F-17	Ⓒ
IC6005	F-13	Ⓕ

Test Point		
TP3501	A-1	Ⓕ
TP6006	D-2	Ⓕ
TP6007	F-4	Ⓕ

Adjustment		
VR6001	E-11	Ⓕ
VR6002	E-13	Ⓕ

Connector		
P001	G-19	
P002	G-19	
P003	G-19	
P1503	G-12	
P1504	G-12	
P1507	G-17	
P6002	E-27	Ⓒ
P6002	E-1	Ⓕ
P6003	F-21	Ⓒ
P6003	F-7	Ⓕ
P6004	E-18	Ⓒ
P6004	E-10	Ⓕ
P6005	C-15	Ⓒ
P6005	C-13	Ⓕ
P6006	B-27	Ⓒ
P6006	B-1	Ⓕ
P6007	D-17	Ⓒ
P6007	D-11	Ⓕ
P6009	C-15	Ⓒ
P6009	C-13	Ⓕ
P6010	D-15	Ⓒ
P6010	D-13	Ⓕ
P6011	E-14	Ⓒ
P6011	F-14	Ⓕ
P6012	C-16	Ⓒ
P6012	C-12	Ⓕ
P6013	E-15	Ⓒ
P6013	E-13	Ⓕ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

SERVO Section

Transistor		
Q2001	B-20	Ⓒ
Q2002	B-20	Ⓒ
Q2003	B-21	Ⓒ

Transistor & Resistor		
QR2004	C-9	Ⓕ
QR2005	E-20	Ⓒ

Integrated Circuit		
IC2001	E-19	Ⓒ
IC2002	C-8	Ⓕ
IC2005	B-19	Ⓒ
IC2006	B-8	Ⓕ
IC2007	C-9	Ⓕ

Test Point		
TP2001	E-19	Ⓒ
TP2001	E-9	Ⓕ
TP2002	E-19	Ⓒ
TP2002	E-9	Ⓕ
TP2003	D-19	Ⓒ
TP2003	D-9	Ⓕ

Adjustment		
VR2001	E-8	Ⓕ

Connector		
P2001	A-20	Ⓒ
P2001	A-8	Ⓕ
P2002	A-18	Ⓒ
P2002	A-9	Ⓕ
P2003	E-20	Ⓒ
P2003	E-8	Ⓕ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

AUDIO Section

Transistor		
Q1503	B-27	
Q4001	D-7	Ⓕ
Q4005	E-7	Ⓕ
Q4007	E-6	Ⓕ
Q4009	D-6	Ⓕ

Transistor & Resistor		
QR4002	E-21	Ⓒ
QR4004	E-6	Ⓕ

Integrated Circuit		
IC4001	E-21	Ⓒ
IC4002	E-7	Ⓕ
IC4003	E-21	Ⓒ

Test Point		
TP4001	D-6	Ⓕ
TP4001	D-22	Ⓒ
TP4002	E-8	Ⓕ
TP4002	D-20	Ⓒ
TP4003	E-7	Ⓕ
TP4003	E-21	Ⓒ

Adjustment		
VR4001	D-6	Ⓕ
C4002	D-21	Ⓒ

Connector		
P4001	F-1	Ⓕ
P4001	F-27	Ⓒ
P4002	E-8	Ⓕ
P4002	E-20	Ⓒ
P4003	E-7	Ⓕ
P4003	E-21	Ⓒ
P4004	C-11	Ⓕ
P4004	D-17	Ⓒ
P4005	F-6	Ⓕ
P4005	F-22	Ⓒ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

POWER SUPPLY Section

Transistor		
Q1001	B-12	Ⓕ
Q1002	C-14	Ⓒ
Q1003	A-17	Ⓒ
Q1004	C-13	Ⓕ
Q1005	B-11	Ⓕ

Transistor & Resistor		
QR1001	C-10	Ⓕ
QR1002	B-10	Ⓕ

Integrated Circuit		
IC1001	A-16	Ⓒ
IC1002	B-16	Ⓒ
IC1003	A-17	Ⓒ
IC1004	A-11	Ⓕ

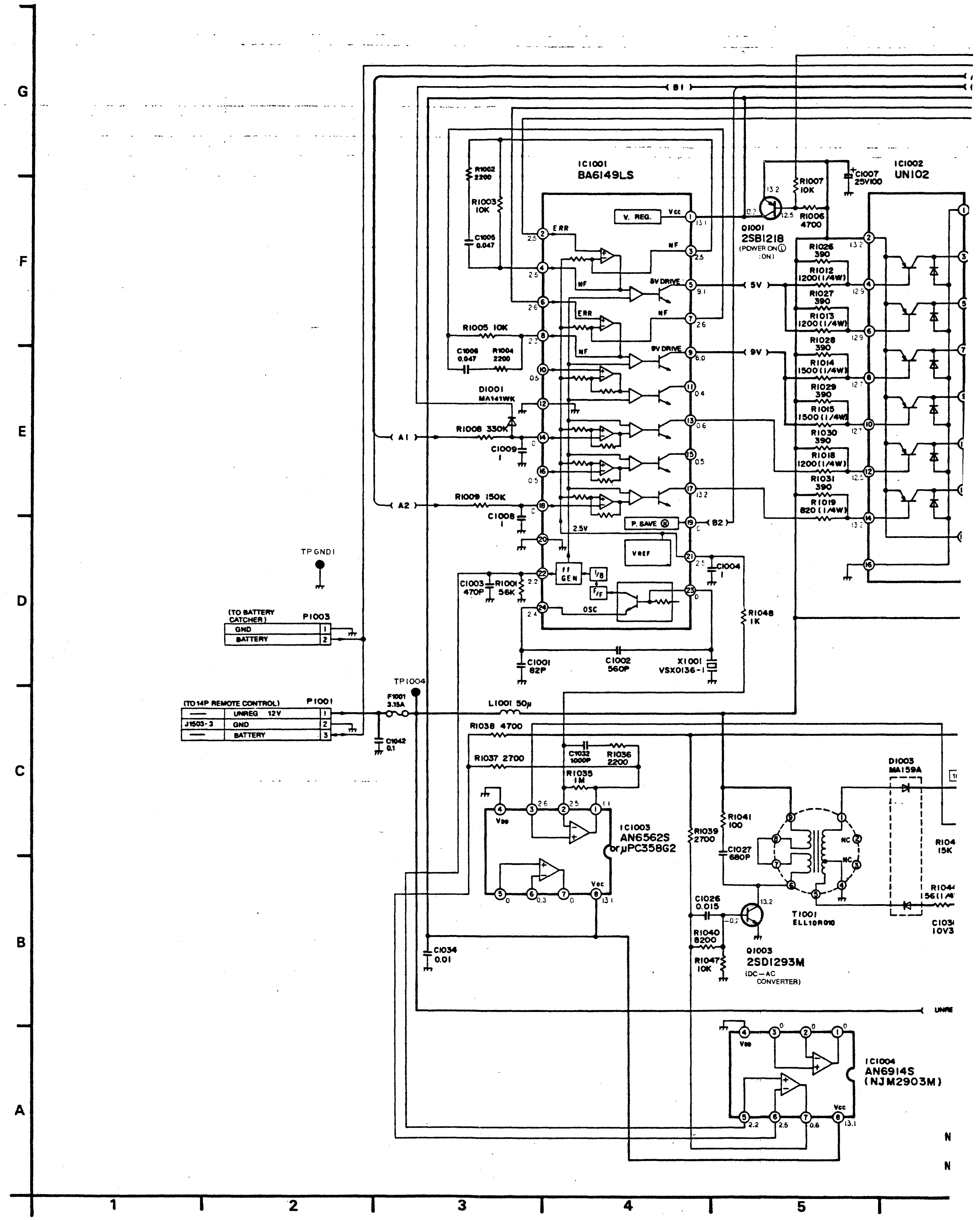
Test Point		
TP1001	D-24	Ⓒ
TP1001	D-4	Ⓕ
TP1002	C-27	Ⓒ
TP1002	C-1	Ⓕ
TP1003	B-27	Ⓒ
TP1003	B-1	Ⓕ
TP1004	B-15	Ⓒ
TP1004	B-13	Ⓕ

Adjustment		
VR1001	B-10	Ⓕ
VR1002	C-11	Ⓕ
VR1003	B-11	Ⓕ

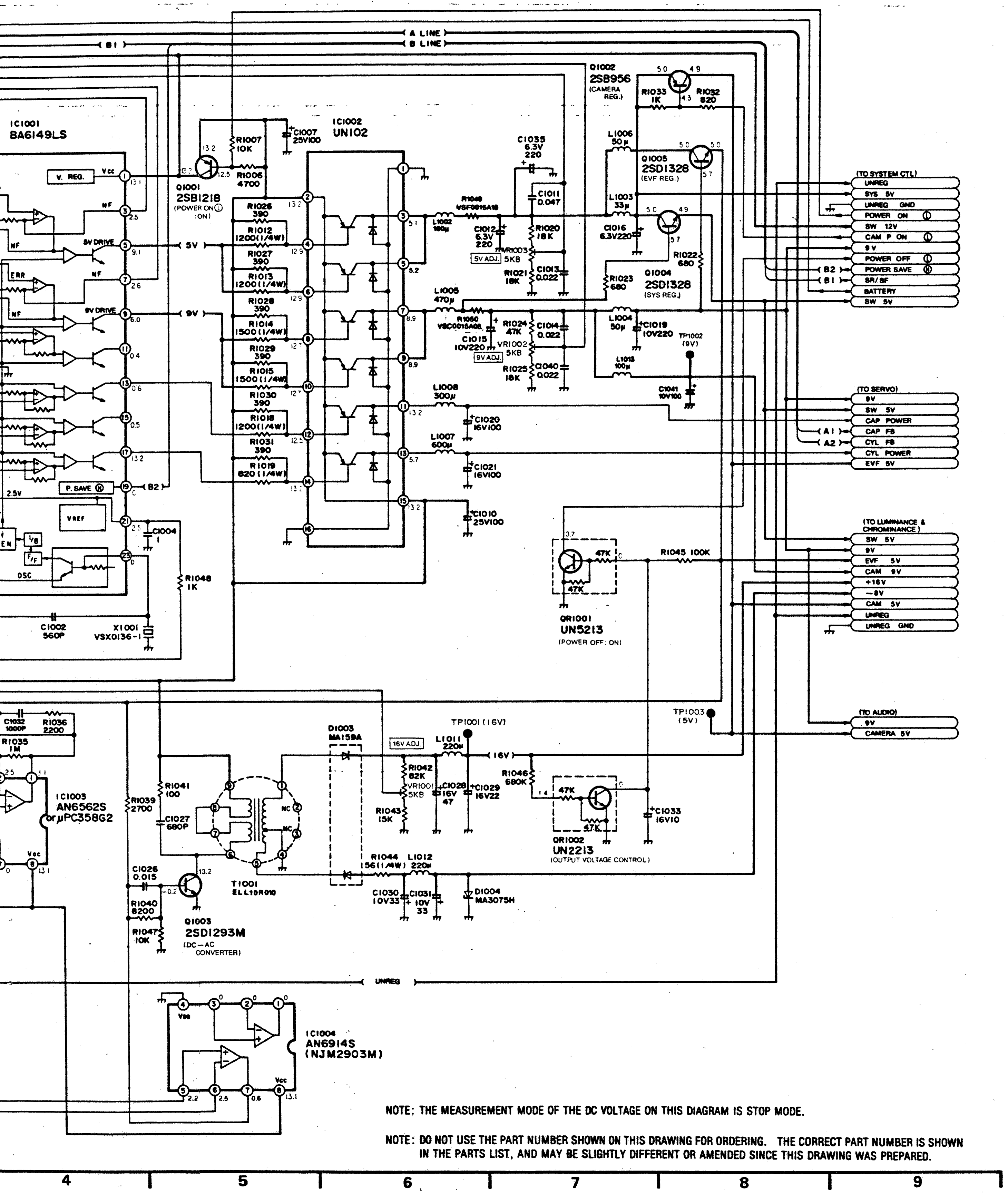
Connector		
P1001	B-14	Ⓒ
P1001	B-14	Ⓕ
P1003	A-14	Ⓒ
P1003	B-14	Ⓕ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

POWER SUPPLY SCHEMATIC DIAGRAM


G
F
E
D
C
B
A
1
2
3
4
5
IC1001
BA6149LS
V. REG.
Vcc
ERR
NF
8V DRIVE
9V DRIVE
P. SAVE
VREF
F/F GEN
OSC
IC1002
UN102
Q1001
2SB1218
(POWER ON ⓛ : ON)
R1007 10K
R1006 4700
C1007 25V100
R1002 2200
R1003 10K
C1005 0.047
R1005 10K
C1006 0.047
R1004 2200
D1001 MA141WK
R1008 330K
C1009
R1009 150K
C1008
C1003 470P
R1001 56K
C1001 82P
C1002 560P
X1001 VSX0136-1
R1048 1K
R1026 390
R1012 1200(1/4W)
R1027 390
R1013 1200(1/4W)
R1028 390
R1014 1500(1/4W)
R1029 390
R1015 1500(1/4W)
R1030 390
R1016 1200(1/4W)
R1031 390
R1019 820(1/4W)
B1
5V
9V
A1
A2
B2
TPGND1
(TO BATTERY CATCHER)
P1003
GND
BATTERY
TP1004
(TO 14P REMOTE CONTROL)
P1001
J1503-3
UNREG 12V
GND
BATTERY
F1001 3.15A
C1042 0.1
L1001 50μ
R1038 4700
R1037 2700
C1032 1000P
R1036 2200
R1035 1M
IC1003
AN6562S
or μPC358G2
Vee
Vcc
C1034 0.01
R1039 2700
R1041 100
C1027 680P
C1026 0.015
R1040 8200
R1047 10K
Q1003
2SD1293M
(DC-AC CONVERTER)
T1001
ELL10R010
D1003
MA159A
R104 15K
R1044 56(1/4W)
C103 10V3
UNREG
IC1004
AN6914S
(NJM2903M)

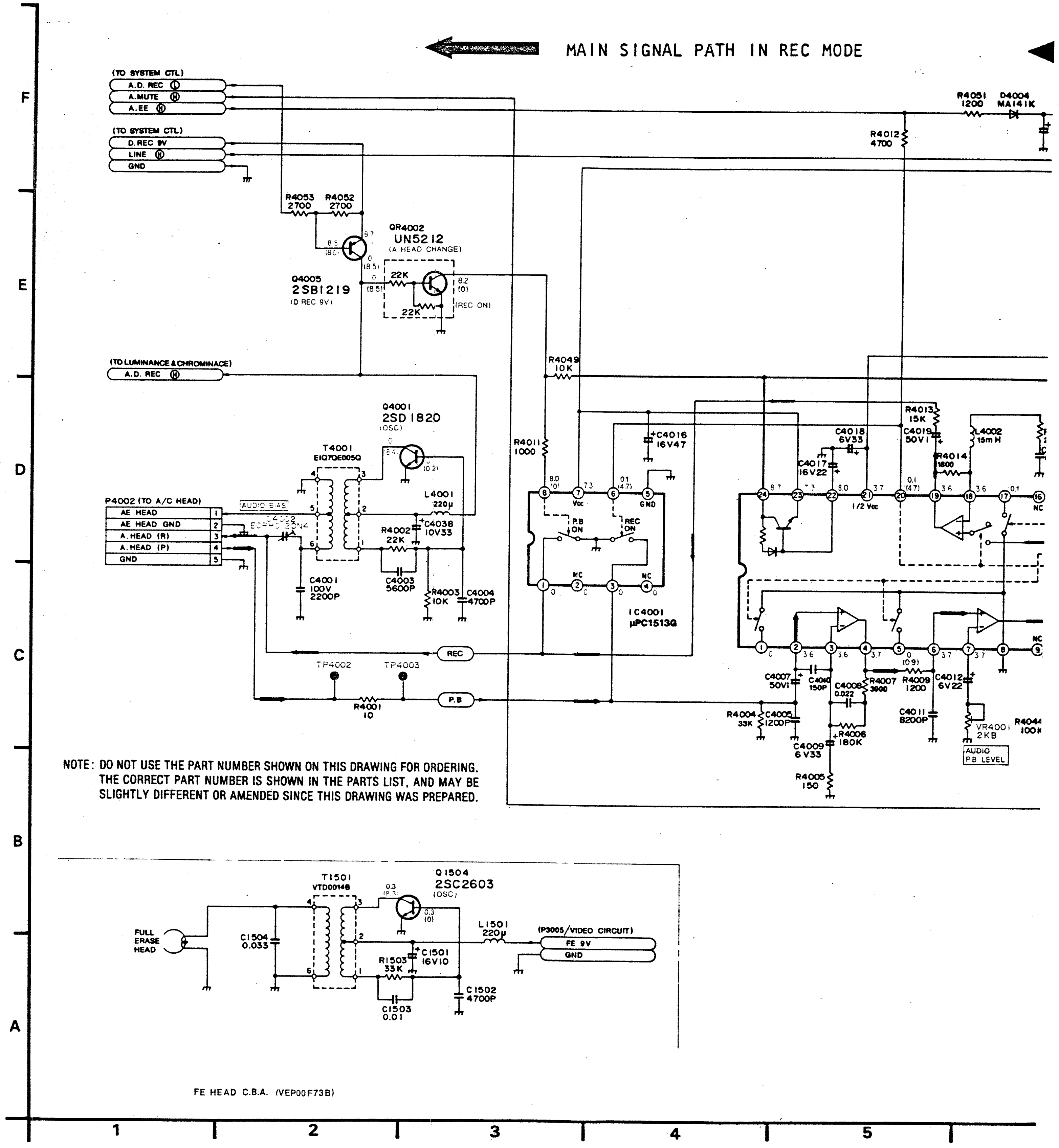
M


A LINE
B LINE
B1
IC1001 BA6149LS
IC1002 UN102
Q1001 2SB1218 (POWER ON ① : ON)
Q1002 2SB956 (CAMERA REG.)
Q1005 2SD1328 (EVF REG.)
Q1004 2SD1328 (SYS REG.)
QR1001 UN5213 (POWER OFF: ON)
(TO SYSTEM CTL)
UNREG
SYS 5V
UNREG GND
POWER ON ①
SW 12V
CAM P ON ①
9V
POWER OFF ①
POWER SAVE ⓗ
B2
B1
SR/SF
BATTERY
SW 5V
(TO SERVO)
9V
SW 5V
CAP POWER
CAP FB
CYL FB
CYL POWER
EVF 5V
A1
A2
(TO LUMINANCE & CHROMINANCE)
SW 5V
9V
EVF 5V
CAM 9V
+16V
−8V
CAM 5V
UNREG
UNREG GND
(TO AUDIO)
9V
CAMERA 5V
5V ADJ.
9V ADJ.
16V ADJ.
TP1001 (16V)
TP1002 (9V)
TP1003 (5V)
X1001 VSX0136-1
IC1003 AN6562S or μPC358G2
D1003 MA159A
D1004 MA3075H
T1001 ELL10R010
Q1003 2SD1293M (DC−AC CONVERTER)
QR1002 UN2213 (OUTPUT VOLTAGE CONTROL)
IC1004 AN6914S (NJM2903M)
UNREG
4
5
6
7
8
9

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

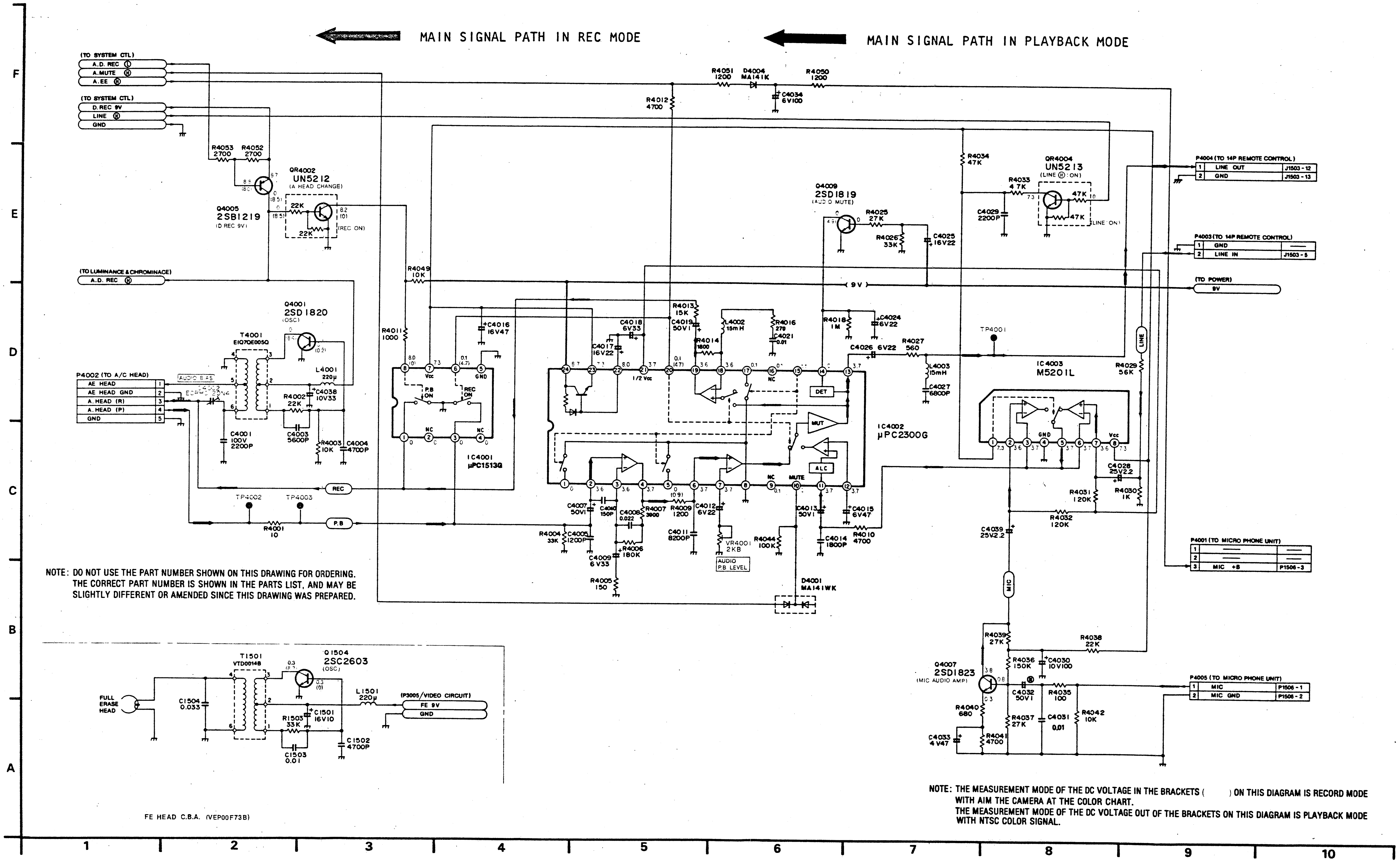
NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

AUDIO SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE
F
E
D
C
B
A
(TO SYSTEM CTL)
A.D. REC
A.MUTE
A.EE
D.REC 9V
LINE
GND
(TO LUMINANCE & CHROMINACE)
A.D. REC
QR4002 UN5212 (A HEAD CHANGE)
Q4005 2SB1219 (D REC 9V)
Q4001 2SD1820 (OSC)
T4001 EIQ7QE005Q
AUDIO BIAS
P4002 (TO A/C HEAD)
AE HEAD
AE HEAD GND
A.HEAD (R)
A.HEAD (P)
GND
IC4001 μPC1513Q
REC
P.B
TP4002
TP4003
AUDIO P.B LEVEL
T1501 VTD0014B
Q1504 2SC2603 (OSC)
FULL ERASE HEAD
(P3005/VIDEO CIRCUIT)
FE 9V
GND
FE HEAD C.B.A. (VEP00F73B)
1
2
3
4
5

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

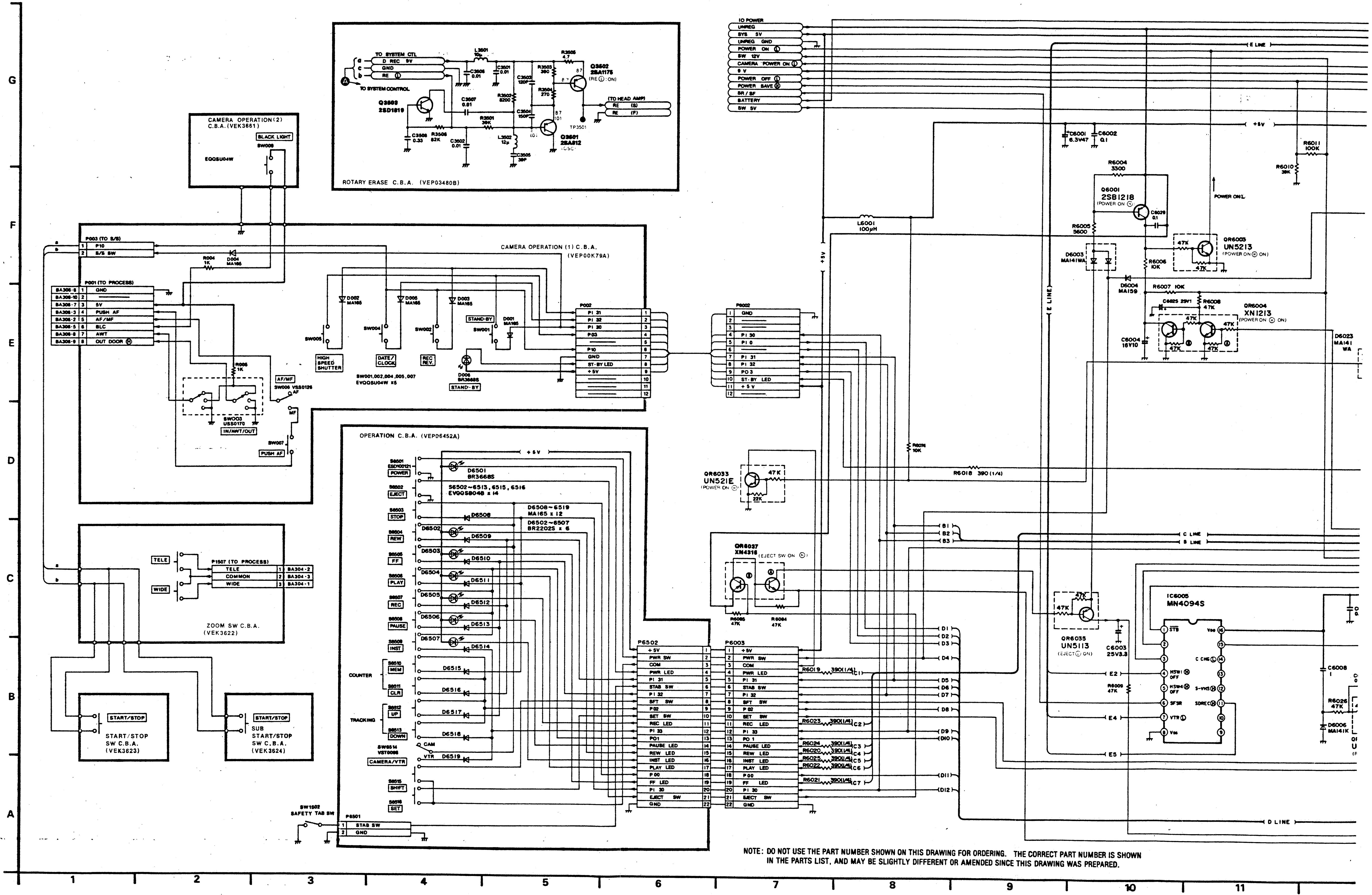
AUDIO SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
(TO SYSTEM CTL)
A.D. REC (L)
A.MUTE (H)
A.EE (H)
(TO SYSTEM CTL)
D.REC 9V
LINE (H)
GND
R4053 2700
R4052 2700
QR4002 UN5212 (A HEAD CHANGE)
Q4005 2SB1219 (D REC 9V)
22K
22K
(REC ON)
(TO LUMINANCE & CHROMINACE)
A.D. REC (H)
Q4001 2SD1820 (OSC)
T4001 EI070E005Q
AUDIO BIAS
L4001 220μ
C4038 10V33
R4002 22K
C4003 5600P
C4001 100V 2200P
R4003 10K
C4004 4700P
P4002 (TO A/C HEAD)
AE HEAD
AE HEAD GND
A. HEAD (R)
A. HEAD (P)
GND
TP4002
TP4003
R4001 10
REC
P.B
R4049 10K
R4011 1000
C4016 16V47
IC4001 μPC1513G
P.B ON
REC ON
Vcc
GND
NC
R4051 1200
D4004 MA141K
R4050 1200
C4034 6V100
R4012 4700
C4018 6V33
C4017 16V22
1/2 Vcc
R4013 15K
C4019 50V1
R4014 1800
L4002 15mH
R4016 270
C4021 0.01
R4018 1M
C4024 6V22
C4026 6V22
R4027 560
L4003 15mH
C4027 6800P
DET
MUT
ALC
MUTE
NC
IC4002 μPC2300G
C4007 50V1
C4040 150P
C4008 0.022
R4007 3900
R4009 1200
C4012 6V22
C4011 8200P
VR4001 2KB
AUDIO P.B LEVEL
R4004 33K
C4005 1200P
C4009 6V33
R4006 180K
R4005 150
C4013 50V1
C4015 6V47
C4014 1800P
R4010 4700
R4044 100K
D4001 MA141WK
Q4009 2SD1819 (AUDIO MUTE)
R4025 27K
R4026 33K
C4025 16V22
R4034 47K
QR4004 UN5213 (LINE (H): ON)
R4033 4.7K
C4029 2200P
47K
47K
(LINE ON)
9V
TP4001
IC4003 M5201L
R4029 56K
LINE
C4028 25V2.2
R4031 120K
R4030 1K
R4032 120K
C4039 25V2.2
MIC
P4004 (TO 14P REMOTE CONTROL)
LINE OUT
J1503-12
GND
J1503-13
P4003 (TO 14P REMOTE CONTROL)
GND
LINE IN
J1503-5
(TO POWER)
9V
P4001 (TO MICRO PHONE UNIT)
MIC +B
P1506-3
R4039 27K
R4038 22K
R4036 150K
C4030 10V100
Q4007 2SD1823 (MIC AUDIO AMP)
C4032 50V1
R4035 100
R4040 680
R4037 27K
C4031 0.01
R4042 10K
C4033 4V47
R4041 4700
P4005 (TO MICRO PHONE UNIT)
MIC
P1506-1
MIC GND
P1506-2
T1501 VTD0014B
Q1504 2SC2603 (OSC)
FULL ERASE HEAD
C1504 0.033
L1501 220μ
(P3005/VIDEO CIRCUIT)
FE 9V
GND
C1501 16V10
R1503 33K
C1502 4700P
C1503 0.01
FE HEAD C.B.A. (VEP00F73B)
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10

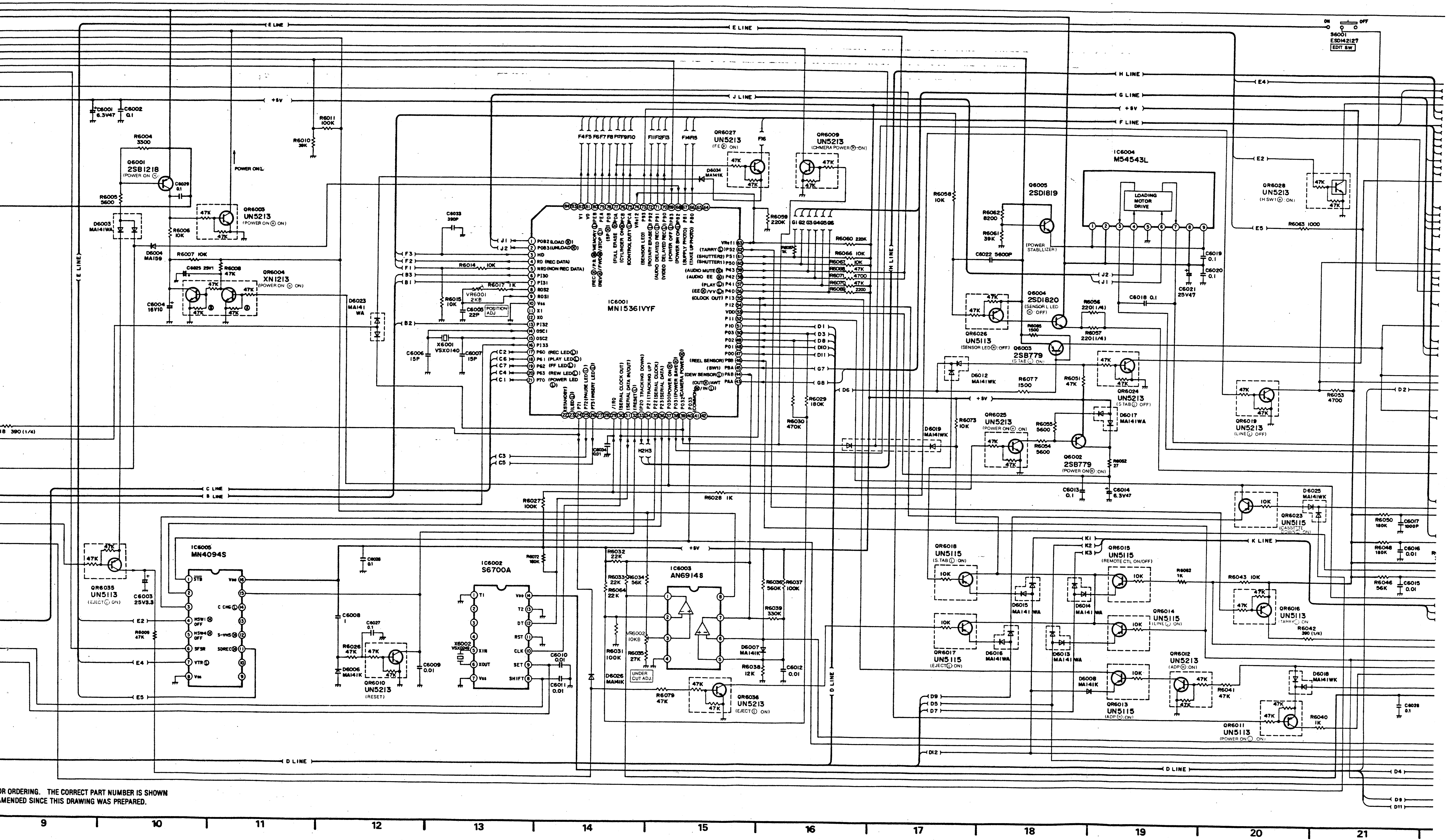
NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH NTSC COLOR SIGNAL.

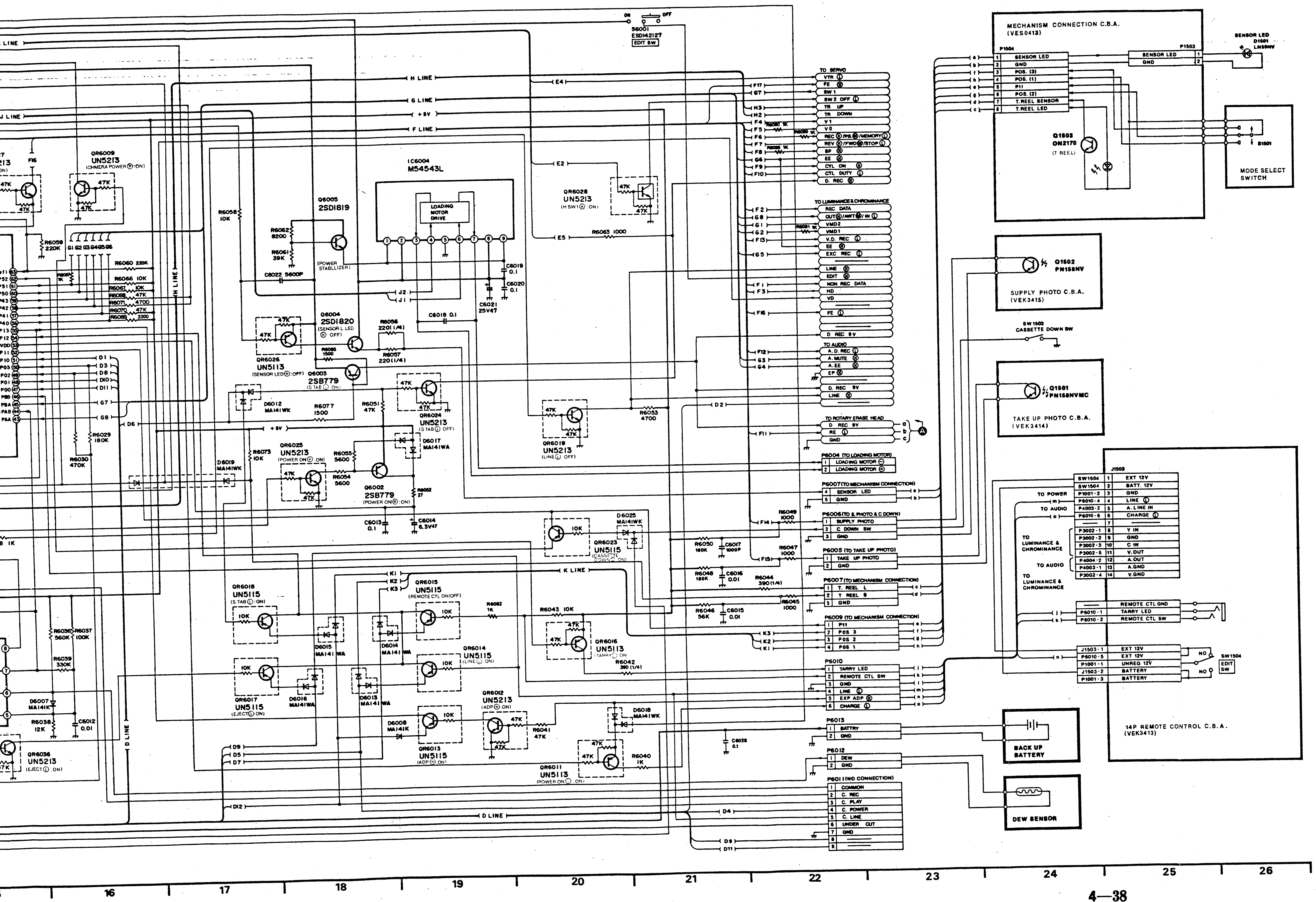
SYSTEM CONTROL SCHEMATIC DIAGRAM


ROTARY ERASE C.B.A. (VEP03480B)
TO SYSTEM CTL
D REC 9V
GND
RE ①
TO SYSTEM CONTROL
Q3503 2SD1819
Q3502 2SA1175
Q3501 2SA812
(TO HEAD AMP)
TP3501
CAMERA OPERATION (2) C.B.A. (VEK3651)
BLACK LIGHT
SW009
EQQSU04W
CAMERA OPERATION (1) C.B.A. (VEP00K79A)
P003 (TO S/S)
P10
S/S SW
P001 (TO PROCESS)
GND
5V
PUSH AF
AF/MF
BLC
AWT
OUT DOOR
P002
HIGH SPEED SHUTTER
DATE/CLOCK
REC REV.
STAND-BY
AF/MF
SW006 VSS0126
SW003 USS0170
IN/AWT/OUT
SW007
PUSH AF
SW001,002,004,005,007 EVQQSU04W x5
D006 BR3668S
ZOOM SW C.B.A. (VEK3622)
TELE
COMMON
WIDE
P1507 (TO PROCESS)
START/STOP SW C.B.A. (VEK3623)
SUB START/STOP SW C.B.A. (VEK3624)
OPERATION C.B.A. (VEP06452A)
POWER
EJECT
STOP
REW
FF
PLAY
REC
PAUSE
INST
COUNTER
MEM
CLR
TRACKING
UP
DOWN
CAMERA/VTR
SHIFT
SET
S6502~6513, 6515, 6516 EVQQS8048 x 14
D6508~6519 MA165 x 12
D6502~6507 BR2202S x 6
D6501 BR3668S
SW1502 SAFETY TAB SW
P6501
STAB SW
GND
P6502
P6003
P8002
IO POWER
UNREG
SYS 5V
UNREG GND
POWER ON
SW 12V
CAMERA POWER ON
9 V
POWER OFF
POWER SAVE
SR / SF
BATTERY
SW 5V
E LINE
C LINE
B LINE
D LINE
L6001 100μH
Q6001 2SB1218
QR6003 UN5213
QR6004 XN1213
QR6033 UN521E
QR6037 XN4316
QR6035 UN5113
IC6005 MN4094S
D6003 MA141WA
D6004 MA159
D6023 MA141 WA
D6006 MA141K
R6018 390 (1/4)
POWER ON

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.


E LINE
J LINE
H LINE
G LINE
F LINE
+5V
C LINE
B LINE
D LINE
K LINE
IC6001
MN15361VYF
IC6002
S6700A
IC6003
AN6914S
IC6004
M54543L
LOADING MOTOR DRIVE
IC6005
MN4094S
Q6001
2SB1218
(POWER ON Ⓒ)
Q6002
2SB779
(POWER ON Ⓗ ON)
Q6003
2SB779
Q6004
2SD1820
(SENSOR LED Ⓗ OFF)
Q6005
2SD1819
(POWER STABLIZER)
QR6003
UN5213
(POWER ON Ⓗ ON)
QR6004
XN1213
(POWER ON Ⓒ ON)
QR6009
UN5213
(CAMERA POWER Ⓗ ON)
QR6010
UN5213
(RESET)
QR6011
UN5113
(POWER ON Ⓛ ON)
QR6012
UN5213
(ADP Ⓗ ON)
QR6013
UN5115
(ADP Ⓗ ON)
QR6014
UN5115
(LINE Ⓛ ON)
QR6015
UN5115
(REMOTE CTL ON/OFF)
QR6016
UN5113
(TARRY Ⓛ ON)
QR6017
UN5115
(EJECT Ⓛ ON)
QR6018
UN5115
(S.TAB Ⓛ ON)
QR6019
UN5213
(LINE Ⓛ OFF)
QR6023
UN5115
(CASSETTE DOWN Ⓛ ON)
QR6024
UN5213
(S.TAB Ⓛ OFF)
QR6025
UN5213
(POWER ON Ⓗ ON)
QR6026
UN5113
(SENSOR LED Ⓗ OFF)
QR6027
UN5213
(FE Ⓗ ON)
QR6028
UN5213
(H SW1 Ⓗ ON)
QR6035
UN5113
(EJECT Ⓛ ON)
QR6036
UN5213
(EJECT Ⓛ ON)
X6001
VSX0140
X6002
VSX0239
VR6001
2KB
POSITION ADJ
VR6002
10KB
UNDER CUT ADJ
S6001
ESD142127
EDIT SW
ON
OFF
POWER ON Ⓛ
9
10
11
12
13
14
15
16
17
18
19
20
21

OR ORDERING. THE CORRECT PART NUMBER IS SHOWN
AMENDED SINCE THIS DRAWING WAS PREPARED.


S6001 ESD142127 EDIT SW
ON
OFF
H LINE
G LINE
+5V
F LINE
J LINE
K LINE
D LINE
IC6004 M54543L
LOADING MOTOR DRIVE
Q6005 2SD1819 (POWER STABLLIZER)
Q6004 2SD1820 (SENSOR L LED Ⓗ OFF)
Q6003 2SB779 (STAB Ⓛ ON)
Q6002 2SB779 (POWER ON Ⓗ ON)
QR6009 UN5213 (CHMERA POWER Ⓗ ON)
QR6026 UN5113 (SENSOR LED Ⓗ OFF)
QR6025 UN5213 (POWER ON Ⓗ ON)
QR6024 UN5213 (STAB Ⓛ OFF)
QR6028 UN5213 (H SW1 Ⓗ ON)
QR6019 UN5213 (LINE Ⓛ OFF)
QR6023 UN5115 (CASSETTE DOWN Ⓛ ON)
QR6018 UN5115 (S.TAB Ⓗ ON)
QR6015 UN5115 (REMOTE CTL ON/OFF)
QR6016 UN5113 (TARRY Ⓛ ON)
QR6014 UN5115 (LINE Ⓛ ON)
QR6017 UN5115 (EJECT Ⓗ ON)
QR6012 UN5213 (ADP Ⓗ ON)
QR6013 UN5115 (ADP Ⓗ ON)
QR6011 UN5113 (POWER ON Ⓛ ON)
QR6036 UN5213 (EJECT Ⓗ ON)
D6012 MA141WK
D6017 MA141WA
D6019 MA141WK
D6025 MA141WK
D6015 MA141WA
D6014 MA141WA
D6016 MA141WA
D6013 MA141WA
D6008 MA141K
D6018 MA141WK
D6007 MA141K
TO SERVO
VTR Ⓛ
FE Ⓗ
SW 1
SW 2 OFF Ⓛ
TR UP
TR DOWN
V 1
V 0
REC Ⓗ/PB Ⓗ/MEMORY Ⓛ
REV Ⓗ/FWD Ⓗ/STOP Ⓛ
SP Ⓗ
EE Ⓗ
CYL ON Ⓗ
CTL DUTY Ⓛ
D. REC Ⓗ
TO LUMINANCE & CHROMINANCE
REC DATA
OUT Ⓗ/AWT Ⓗ/IN Ⓛ
VMD 2
VMD 1
V.D. REC Ⓛ
EE Ⓗ
EXC REC Ⓛ
LINE Ⓗ
EDIT Ⓗ
NON REC DATA
HD
VD
FE Ⓛ
D. REC 9V
TO AUDIO
A.D. REC Ⓛ
A. MUTE Ⓗ
A. EE Ⓛ
EP Ⓗ
D. REC 9V
LINE Ⓗ
TO ROTARY ERASE HEAD
D. REC 9V
RE Ⓛ
GND
P6004 (TO LOADING MOTOR)
LOADING MOTOR ⊖
LOADING MOTOR ⊕
P6007 (TO MECHANISM CONNECTION)
SENSOR LED
GND
P6006 (TO S. PHOTO & C DOWN)
SUPPLY PHOTO
C DOWN SW
GND
P6005 (TO TAKE UP PHOTO)
TAKE UP PHOTO
GND
P6007 (TO MECHANISM CONNECTION)
T. REEL L
T. REEL S
GND
P6009 (TO MECHANISM CONNECTION)
P11
POS 3
POS 2
POS 1
P6010
TARRY LED
REMOTE CTL SW
GND
LINE Ⓛ
EXP ADP Ⓗ
CHARGE Ⓗ
P6013
BATTERY
GND
P6012
DEW
GND
P6011 (NO CONNECTION)
COMMON
C. REC
C. PLAY
C. POWER
C. LINE
UNDER CUT
GND
MECHANISM CONNECTION C.B.A. (VES0413)
P1504
P1503
SENSOR LED
GND
POS. (3)
POS. (1)
P11
POS. (2)
T. REEL SENSOR
T. REEL LED
SENSOR LED D1501 LN59NV
Q1503 ON2170 (T REEL)
S1501
MODE SELECT SWITCH
Q1502 PN158NV
SUPPLY PHOTO C.B.A. (VEK3415)
SW1503 CASSETTE DOWN SW
Q1501 PN158NVMC
TAKE UP PHOTO C.B.A. (VEK3414)
J1503
SW1504 EXT 12V
SW1504 BATT. 12V
P1001·2 GND
P6010·4 LINE Ⓛ
P4003·2 A. LINE IN
P6010·6 CHARGE Ⓛ
P3002·1 Y IN
P3002·2 GND
P3002·3 C IN
P3002·5 V.OUT
P4004·2 A.OUT
P4003·1 A.GND
P3002·4 V.GND
TO POWER
TO AUDIO
TO LUMINANCE & CHROMINANCE
TO AUDIO
TO LUMINANCE & CHROMINANCE
REMOTE CTL GND
P6010·1 TARRY LED
P6010·2 REMOTE CTL SW
J1503·1 EXT 12V
P6010·5 EXT 12V
P1001·1 UNREG 12V
J1503·2 BATTERY
P1001·3 BATTERY
SW1504 EDIT SW
NO
14P REMOTE CONTROL C.B.A. (VEK3413)
BACK UP BATTERY
DEW SENSOR
16
17
18
19
20
21
22
23
24
25
26

SYSTEM CONTROL ICs VOLTAGE CHART

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	0.2	0	0	4.8	4.9	4.9	4.9	0	0.3	4.9	4.8	2.5	2.0	4.8	3.7	3.8	3.8	3.8
PLAY	0	0	0.2	0	0	4.7	4.9	4.9	4.9	0	0.4	0.5	4.8	2.5	2.0	4.9	3.8	0.3	3.8	3.8
REC	0	0	0.2	0	0	4.8	4.9	4.9	4.9	0	0.3	4.9	4.8	2.5	2.0	4.8	0.4	0.3	3.8	3.8
F.F	0	0	0.2	0	0	4.8	4.9	4.9	4.9	0	0.3	4.9	4.8	2.5	2.0	4.8	3.7	3.8	0.3	3.8
REW	0	0	0.3	0	0	4.8	4.9	4.9	4.9	0	0.3	—	4.8	2.5	2.0	4.8	3.7	3.8	3.8	0.3

REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0.3	0	0	3.7	3.8	3.8	3.9	4.0	4.9	4.7	4.9	4.9	0	0	0	0.1	4.9	0	4.9	4.7
PLAY	0.3	0	0	3.8	3.8	3.8	3.9	4.6	4.9	4.7	4.9	4.9	0	0	0.1	0.1	0	0	0	4.8
REC	0.4	0	0	3.7	0	3.8	3.9	—	4.9	4.7	4.9	4.9	0	0.1	0.1	0.1	4.9	0.1	4.9	4.9
F.F	0.3	0	0	3.7	3.8	3.7	0	0	4.9	4.7	4.8	4.9	0	0	0.1	0.1	4.9	0	4.9	4.7
REW	0.3	0	0	3.7	3.8	3.8	0	4.0	4.9	4.7	0	0	0.1	0.1	0.1	0.1	4.9	0	4.9	4.7

REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0	0	2.2	4.7	0	0.4	4.8	4.8	4.8	4.8	4.8	4.8	4.9	4.8	4.8	4.9	4.9	4.9	4.9	0.1
PLAY	0	0	0	4.7	—	—	4.9	4.9	4.9	4.9	4.9	4.8	0	0	4.8	0.3	0.1	0.2	0.1	0.1
REC	−0.3	−0.1	2.2	4.7	—	—	4.9	4.9	4.9	4.9	4.9	4.8	4.9	4.8	4.7	4.8	4.9	4.9	0.1	0.1
F.F	0	0	2.2	4.7	0	—	4.9	4.9	4.9	4.9	4.9	4.8	4.9	4.8	4.8	4.8	4.9	4.9	4.9	0.1
REW	0	0	2.2	4.7	0	—	4.9	4.9	4.9	4.9	4.9	4.8	4.9	4.8	4.8	4.8	4.9	4.9	4.9	0.1

REF. NO.	IC6001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0.1	4.9	2.4	0	0	4.9	4.9	0.3	0	0.3	0.3	0.3	0	0	−0.1	0	0.1	0.1	0.1	0
PLAY	0.1	4.9	2.4	−0.2	0	4.9	4.9	—	3.7	8.8	8.8	5.7	8.7	2.4	0	4.9	0	4.9	2.5	2.5
REC	0.1	0.1	2.4	0	0	4.9	4.9	—	3.6	0.3	0.3	0.1	8.7	2.4	0	4.9	4.9	4.9	2.5	4.9
F.F	0.1	4.9	2.4	0	0	4.9	4.9	—	3.6	8.8	8.8	5.7	6.8	2.4	0	0	0	2.5	2.5	4.9
REW	0.1	4.9	2.4	0	0	4.9	4.9	—	3.6	8.8	8.8	5.7	6.8	2.4	0	0	0	2.5	4.9	4.9

REF. NO.	IC6001																			
MODE	81	82	83	84																
STOP	0.1	0.1	0	0																
PLAY	4.9	0	0	0																
REC	4.9	0	0.3	0.4																
F.F	4.9	4.9	0	0																
REW	4.9	4.9	0	0																

REF. NO.	IC6002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	0.4	0	0	−0.1	0.2	0	0	0	4.7	0	4.9	0	0						
PLAY	0	0.5	0	0	−0.1	0.2	0	0	0	4.7	0	4.9	0	0						
REC	0	0.4	0	0	−0.1	0.2	0	0	0	4.7	0	4.9	0	0.4						
F.F	0	0.4	0	0	−0.1	0.2	0	−0.1	−0.1	4.8	0	4.9	0	0						
REW	0	0.4	0	0	−0.1	0.2	0	0	0	4.7	0	4.9	0	0.3						

REF. NO.	IC6003										IC6004									
MODE	1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8	9	
STOP	4.7	4.2	4.4	0	0.7	0	4.7	13.0			6.9	13.2	0.4	0	0	0	0.3	13.2	6.9	
PLAY	4.7	4.2	4.5	0	0.7	0	4.7	13.3			6.8	13.4	0.5	0	0	0	0.5	13.4	6.8	
REC	4.7	4.2	4.4	0	0.7	0	4.7	12.9			6.9	13.0	0.5	0	0	0	0.3	13.0	6.9	
F.F	4.7	4.1	4.4	0	0.7	0	4.7	12.9			6.8	13.0	0.4	0	0	0	0.3	13.0	6.8	
REW	4.7	4.2	4.4	0	0.7	0	4.7	12.8			6.9	13.0	0.4	0	0	0	0.4	13.0	6.8	

REF. NO.	IC6005																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	4.7	0.1	0.1	0	0	5.0	5.0	0	0.1	0.1	0	0	4.6	5.0	4.9	5.0				
PLAY	4.7	0.1	0.1	0	0	5.0	5.0	0	0.1	0.1	1.8	4.9	4.9	0	4.9	5.0				
REC	4.9	0.1	0.1	0	0	5.0	0	0	5.0	5.0	5.0	0	0	5.0	4.9	5.0				
F.F	4.7	0.1	0.1	0	0	5.0	5.0	0	0.1	0.1	1.8	1.8	4.6	5.0	4.9	5.0				
REW	4.7	0.1	0.1	0	0	5.0	5.0	0	0.1	0.1	0	1.8	4.6	4.9	4.9	5.0				

SYSTEM CONTROL TRANSISTORs VOLTAGE CHART

REF. NO.	Q6001			Q6002			Q6003			Q6004			Q6005					
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B			
STOP	13.1	8.7	13.1	5.0	4.9	4.3	8.8	8.8	8.0	−0.4	13.1	−0.2	6.9	8.8	7.3			
PLAY	13.4	8.9	13.4	5.0	5.0	4.3	8.8	8.8	8.0	−0.5	−0.1	−0.3	6.8	8.8	7.3			
REC	13.0	8.6	13.0	5.0	4.9	4.3	8.7	8.7	8.0	−0.4	13.0	−0.2	6.9	8.8	7.3			
F.F	13.1	8.7	13.1	5.0	4.9	4.3	8.8	8.8	8.1	2.0	13.1	2.2	6.8	8.8	7.3			
REW	13.0	8.6	13.0	5.0	4.9	4.3	8.8	8.8	8.1	2.0	13.0	2.2	6.8	8.8	7.3			

REF. NO.	QR6003			QR6004 Ⓐ			QR6004 Ⓑ			QR6009			QR6010			QR6011		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	8.7	0	10.8	0	0	0	4.9	0	0.1	4.9	0	4.9	0	12.5	12.5	0
PLAY	0	0	8.9	0	11.0	0	0	0	4.9	0	5.0	0.1	0	4.9	0	12.5	12.4	0
REC	0	0	8.6	0	10.7	0	0	0	4.9	0	0.1	4.9	0	4.9	0	12.5	12.4	0
F.F	0	0	8.7	0	10.8	0	0	0	4.9	0	0.1	4.9	0	4.9	0	12.5	12.4	0
REW	0	0	8.7	0	10.8	0	0	0	4.9	0	0.1	4.9	0	4.9	0	12.5	12.4	0

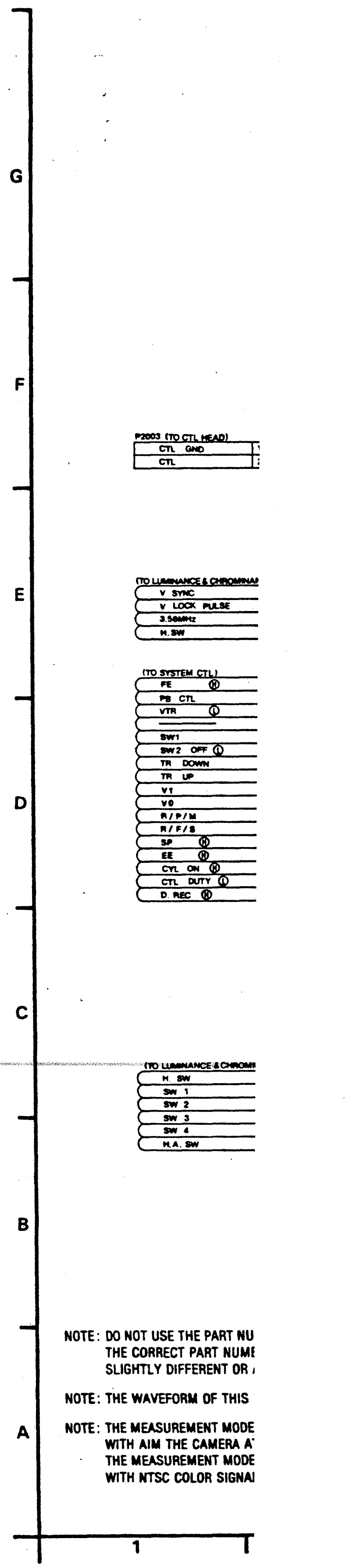
REF. NO.	QR6012			QR6013			QR6014			QR6015			QR6016			QR6017		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	6.1	4.8	4.8	0	4.6	4.8	4.8	4.6	4.8	4.9	5.0	0	4.9	4.6	4.8	4.4
PLAY	0	0	6.2	4.8	4.8	0	4.8	4.8	4.2	4.6	4.8	5.0	5.0	0	4.9	4.6	4.8	4.4
REC	0	0	6.0	4.7	4.7	0	4.6	4.7	4.8	4.6	4.8	4.9	5.0	4.9	0.1	4.6	4.8	4.4
F.F	0	0	6.1	4.7	4.7	0	4.6	4.8	4.8	4.6	4.8	4.9	5.0	−0.2	4.9	4.6	4.8	4.4
REW	0	0	6.1	4.7	4.7	0	4.5	4.7	4.8	4.6	4.8	4.9	5.0	−0.1	4.9	4.6	4.8	4.4

REF. NO.	QR6018			QR6019			QR6023			QR6024			QR6025			QR6026		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	4.8	4.8	0.5	0	0	4.4	4.8	4.8	0.5	0	0	0.4	0	0	4.8	8.8	−0.2	8.7
PLAY	4.8	4.8	0.5	0	0	3.8	4.8	4.8	0.5	0	0	0.4	0	0	4.9	8.8	−0.4	8.7
REC	4.8	4.8	0.5	0	0	4.4	4.8	4.8	0.5	0	5.0	0.4	0	0	4.9	8.8	−0.1	8.7
F.F	4.8	4.8	0.5	0	0	4.4	4.8	4.8	0.5	0	0	0.4	0	0	4.9	8.8	2.5	7.2
REW	4.8	4.8	0.5	0	0	4.4	4.8	4.8	0.5	0	0	0.4	0	0	4.9	8.8	2.2	7.2

REF. NO.	QR6027			QR6028			QR6033			QR6035			QR6036					
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B			
STOP	0	8.7	0	0	0	0	0	0	4.0	12.7	0	12.6	0	4.4	0			
PLAY	0	8.7	0.1	0	—	0	0	0.7	0.7	12.9	0	12.8	0	4.4	0			
REC	0.8	0.9	4.9	0	—	0	0	0	0.8	12.7	0	12.5	0	4.4	0			
F.F	0	8.7	0	0	0	0	0	0	4.0	12.8	0	12.7	0	4.4	0			
REW	0	8.7	0	0	0	0	0	0	4.0	12.8	0	12.6	0	4.4	0			

REF. NO.	QR6037 Ⓐ			QR6037 Ⓑ														
MODE	E	C	B	E	C	B												
STOP	13.1	−0.2	—	12.6	−0.3	−0.4												
PLAY	13.3	−0.6	—	−0.4	12.8	−0.4												
REC	13.0	−0.3	—	−0.6	12.5	−0.4												
F.F	13.2	−0.4	—	−0.4	12.7	−0.4												
REW	13.1	¬0.6	—	−0.6	12.7	−0.5												

SERVO SCHE



NOTE: DO NOT USE THE PART NU
THE CORRECT PART NUMI
SLIGHTLY DIFFERENT OR /

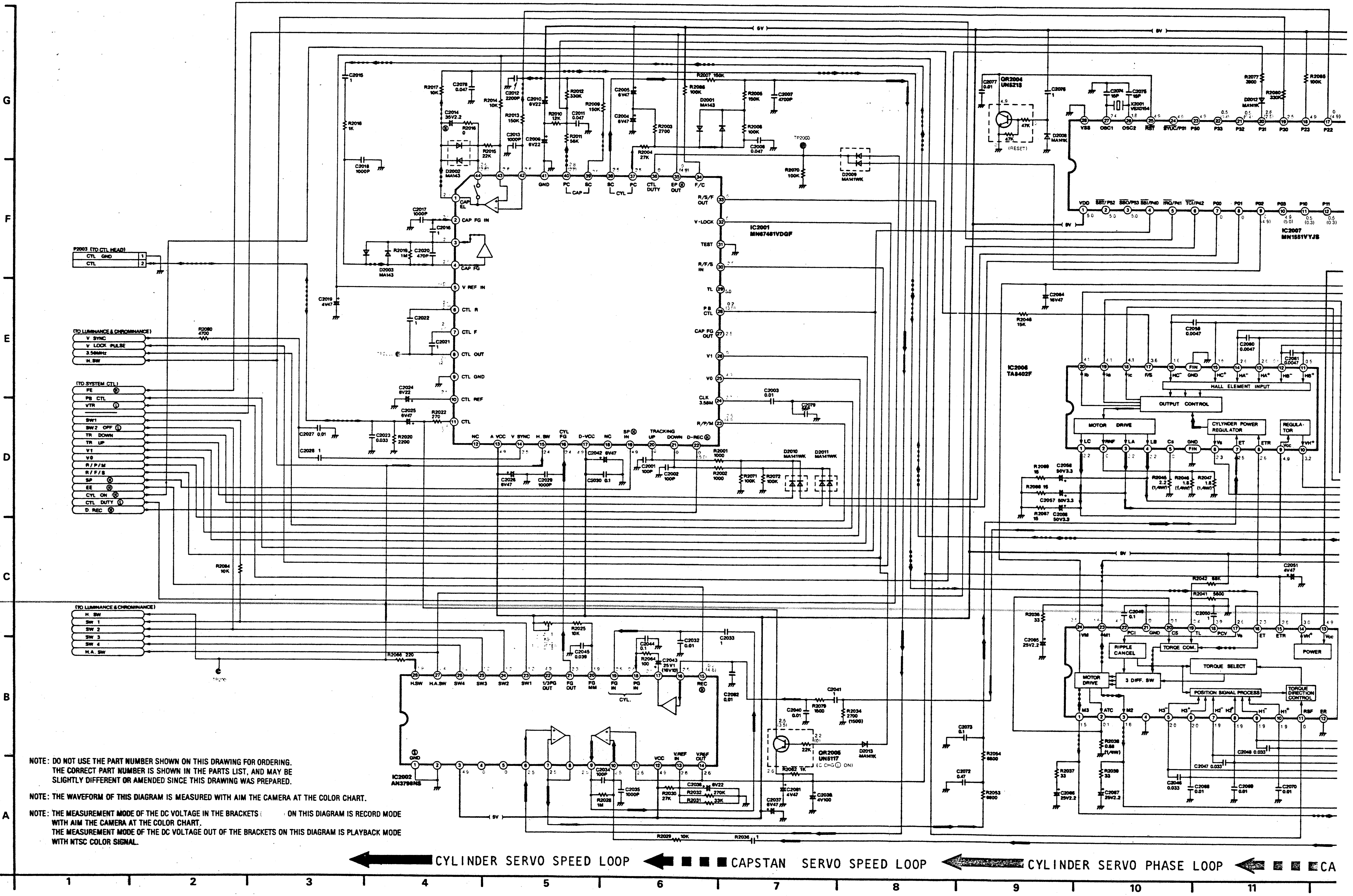
NOTE: THE WAVEFORM OF THIS

NOTE: THE MEASUREMENT MODE
WITH AIM THE CAMERA A
THE MEASUREMENT MODE
WITH NTSC COLOR SIGNAI

ART

Q6005					
E	C	B			
.9	8.8	7.3			
.8	8.8	7.3			
.9	8.8	7.3			
.8	8.8	7.3			
.8	8.8	7.3			
QR6010			QR6011		
E	C	B	E	C	B
0	4.9	0	12.5	12.5	0
0	4.9	0	12.5	12.4	0
0	4.9	0	12.5	12.4	0
0	4.9	0	12.5	12.4	0
0	4.9	0	12.5	12.4	0
QR6016			QR6017		
E	C	B	E	C	B
.0	0	4.9	4.6	4.8	4.4
.0	0	4.9	4.6	4.8	4.4
.0	4.9	0.1	4.6	4.8	4.4
.0	−0.2	4.9	4.6	4.8	4.4
.0	−0.1	4.9	4.6	4.8	4.4
QR6025			QR6026		
E	C	B	E	C	B
0	0	4.8	8.8	−0.2	8.7
0	0	4.9	8.8	−0.4	8.7
0	0	4.9	8.8	−0.1	8.7
0	0	4.9	8.8	2.5	7.2
0	0	4.9	8.8	2.2	7.2
QR6036					
E	C	B			
0	4.4	0			
0	4.4	0			
0	4.4	0			
0	4.4	0			
0	4.4	0			

SERVO SCHEMATIC DIAGRAM


IC2001 MN67461VDGF
IC2002 AN3798NS
IC2006 TA8402F
IC2007 MN1551VYJS
QR2004 UN5213
QR2005 UN5117
P2003 (TO CTL HEAD)
(TO LUMINANCE & CHROMINANCE)
(TO SYSTEM CTL)
HALL ELEMENT INPUT
OUTPUT CONTROL
MOTOR DRIVE
CYLINDER POWER REGULATOR
REGULATOR
RIPPLE CANCEL
TORQE COM.
TORQUE SELECT
3 DIFF. SW
POSITION SIGNAL PROCESS
TORQUE DIRECTION CONTROL
POWER
CYLINDER SERVO SPEED LOOP
CAPSTAN SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
CA
G
F
E
D
C
B
A
1
2
3
4
5
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7
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9
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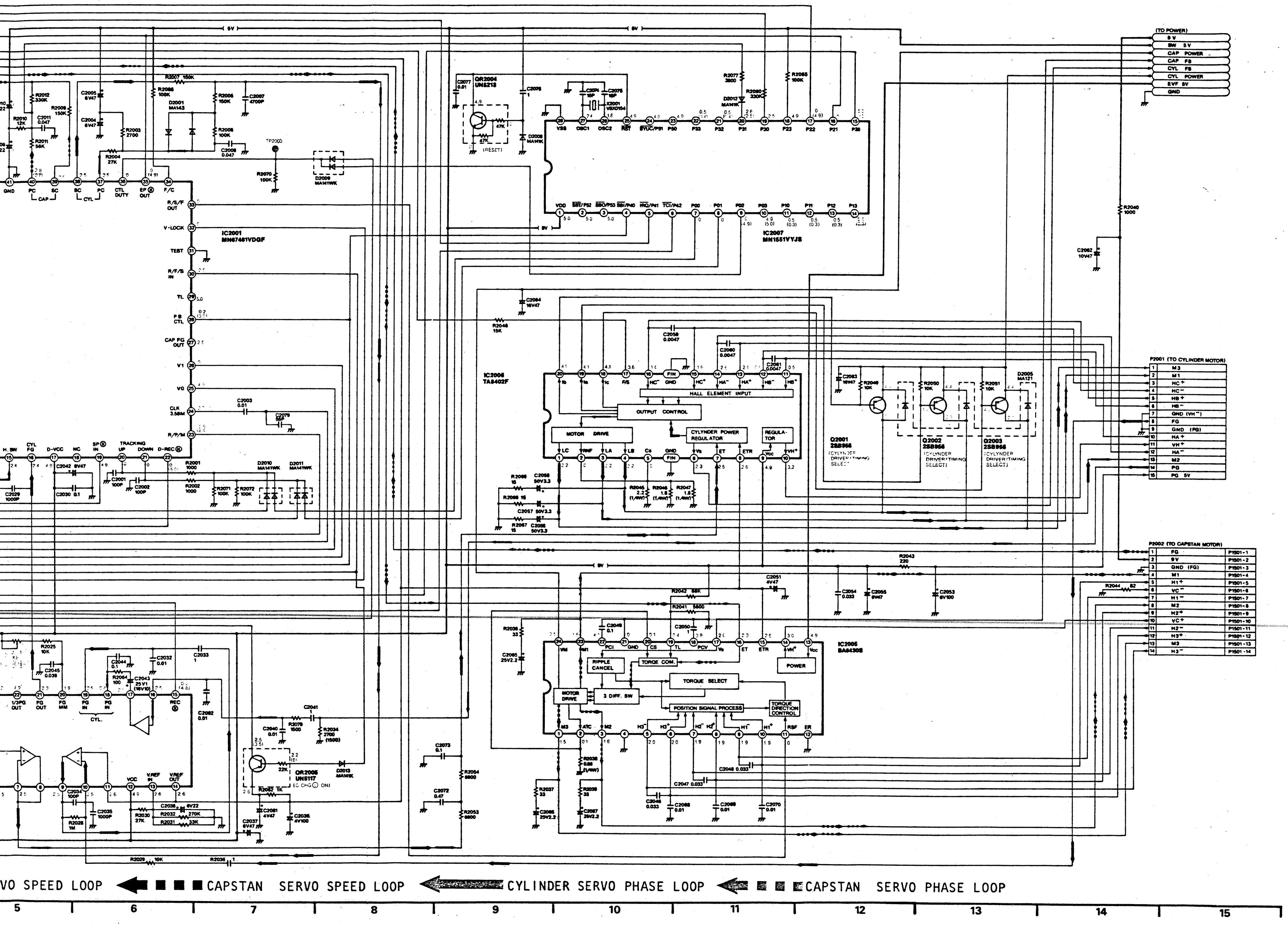
11

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING.
THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOR CHART.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH NTSC COLOR SIGNAL.


IC2001
MN67461VDGF
IC2007
MN1551VYJS
IC2006
TA8402F
IC2005
BA6430S
QR2004
UN5213
QR2005
UN5117
Q2001
2SB956
Q2002
2SB956
Q2003
2SB956
(TO POWER)
9 V
SW 5 V
CAP POWER
CAP FB
CYL FB
CYL POWER
EVF 5V
GND
P2001 (TO CYLINDER MOTOR)
P2002 (TO CAPSTAN MOTOR)
HALL ELEMENT INPUT
OUTPUT CONTROL
MOTOR DRIVE
CYLINDER POWER REGULATOR
REGULATOR
RIPPLE CANCEL
TORQE COM.
TORQUE SELECT
3 DIFF. SW
POSITION SIGNAL PROCESS
TORQUE DIRECTION CONTROL
POWER
VO SPEED LOOP
CAPSTAN SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
CAPSTAN SERVO PHASE LOOP
5
6
7
8
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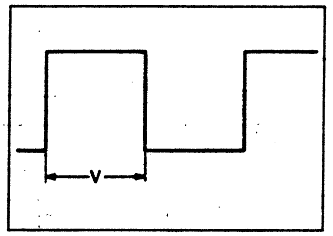
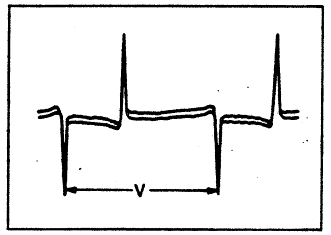
10
11
12
13
14
15

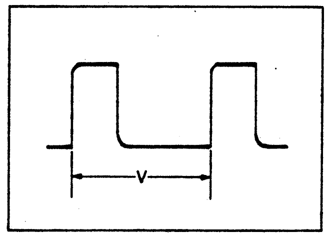
SERVO CIRCUIT TP (Test Point) WAVE FORM (REF No. 2000 Series)



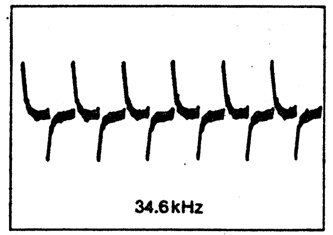
TP2001 REC/PLAY
2V/10msec. div. 4Vp-p



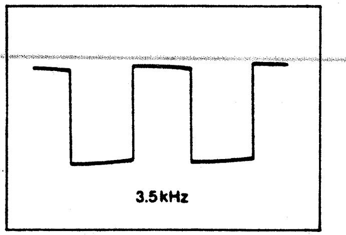
TP2002 PLAY
1V/10msec. div. 3.8Vp-p



TP2002 REC
2V/10msec. div. 5Vp-p



TP2003 PLAY
5mV/20μsec. div. 150mVp-p

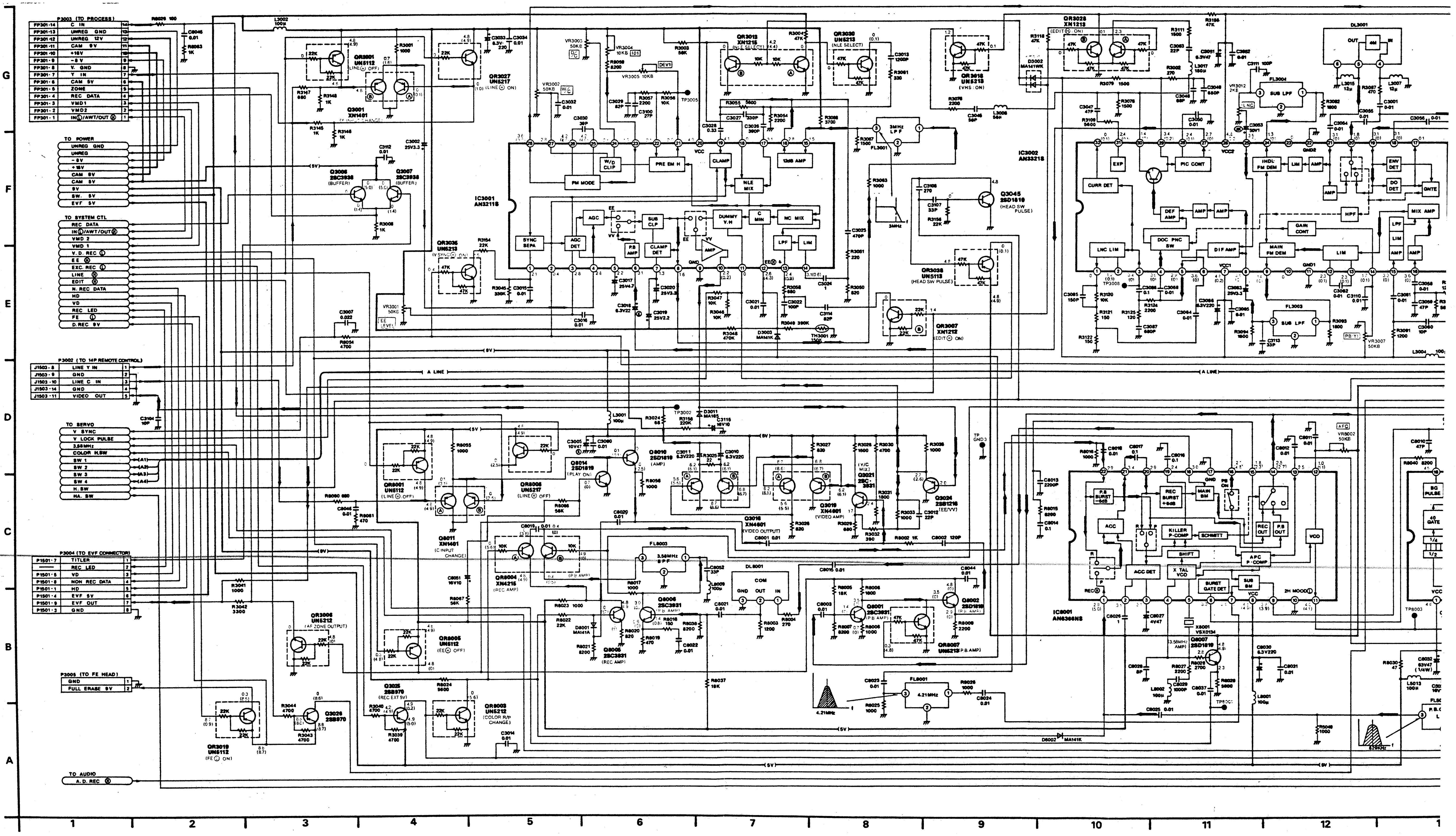


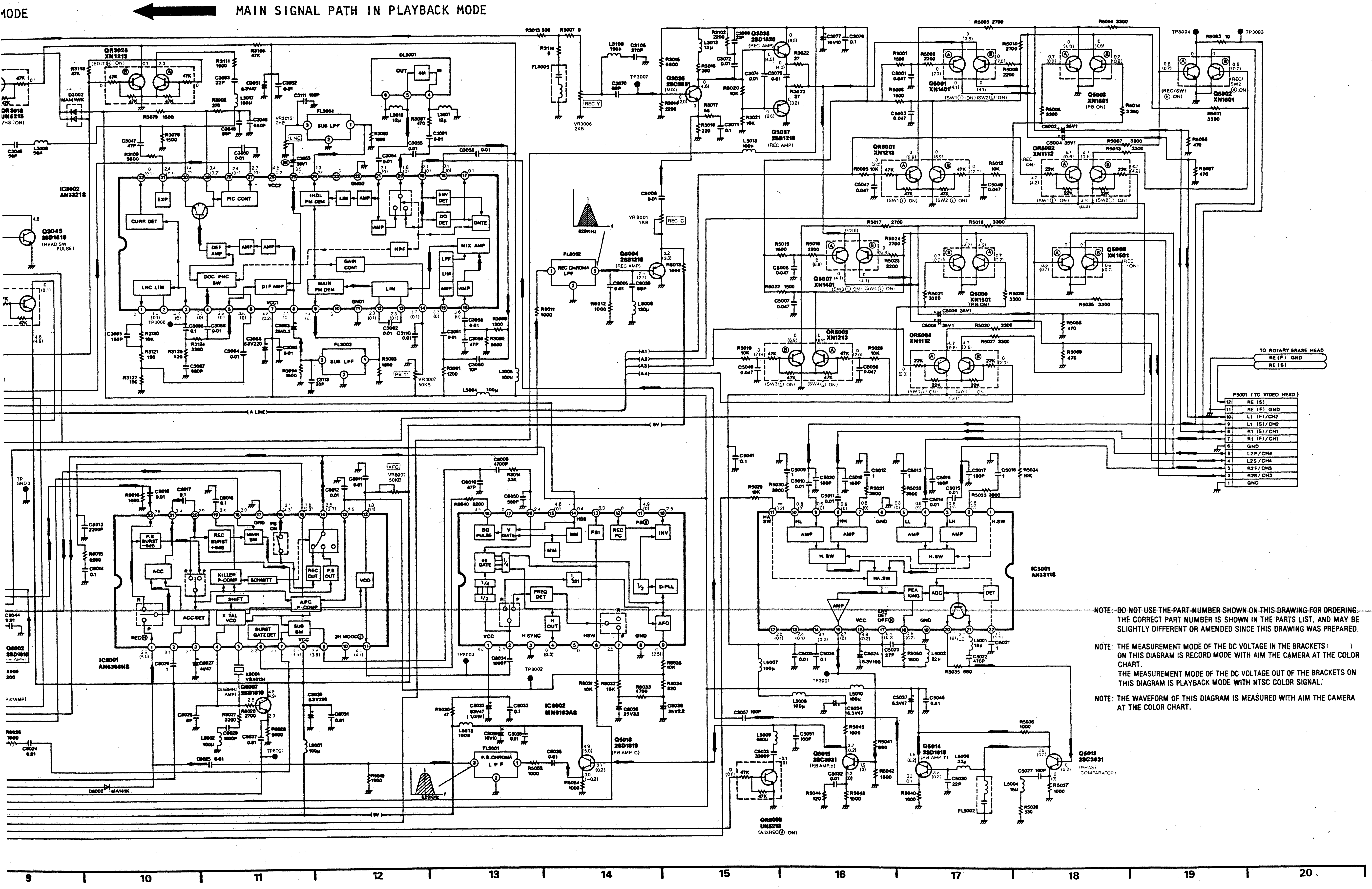
TP2003 REC
2V/20msec. div. 5Vp-p

LUMINANCE & CHROMINANCE and HEAD AMP SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE

MAIN SIGNAL PATH IN PLAYBACK MODE


P3003 (TO PROCESS)
FP301-14 C IN 14
FP301-13 UNREG GND 13
FP301-12 UNREG 12V 12
FP301-11 CAM 9V 11
FP301-10 +16V 10
FP301-9 -8V 9
FP301-8 V. GND 8
FP301-7 Y IN 7
FP301-6 CAM 5V 6
FP301-5 ZONE 5
FP301-4 REC DATA 4
FP301-3 VMD1 3
FP301-2 VMD2 2
FP301-1 IN Ⓛ/AWT/OUT Ⓗ 1
TO POWER
UNREG GND
UNREG
-8V
+16V
CAM 9V
CAM 5V
9V
SW. 5V
EVF 5V
TO SYSTEM CTL
REC DATA
IN Ⓛ/AWT/OUT Ⓗ
VMD 2
VMD 1
V.D. REC Ⓛ
EE Ⓗ
EXC. REC Ⓛ
LINE Ⓗ
EDIT Ⓗ
N. REC DATA
HD
VD
REC LED
FE Ⓛ
D. REC 9V
P3002 (TO 14P REMOTE CONTROL)
J1503-8 LINE Y IN 1
J1503-9 GND 2
J1503-10 LINE C IN 3
J1503-14 GND 4
J1503-11 VIDEO OUT 5
TO SERVO
V SYNC
V LOCK PULSE
3.58MHz
COLOR H.SW
SW 1 (A1)
SW 2 (A2)
SW 3 (A3)
SW 4 (A4)
H. SW
HA. SW
P3004 (TO EVF CONNECTOR)
P1501-7 TITLER 1
REC LED 2
P1501-6 VD 3
P1501-8 NON REC DATA 4
P1501-1 HD 5
P1501-4 EVF 5V 6
P1501-9 EVF OUT 7
P1501-3 GND 8
P3005 (TO FE HEAD)
GND 1
FULL ERASE 9V 2
TO AUDIO
A.D. REC Ⓗ
IC3001 AN3211S
IC3002 AN3321S
IC8001 AN6366NS
FM MODE
W/D CLIP
PRE EM H
CLAMP
NLE MIX
12dB AMP
SYNC SEPA
AGC
AGC DET
SUB CLP
PB AMP
CLAMP DET
DUMMY V.H
C MIN
NC MIX
LPF
LIM
AMP
3MHz LPF
FL3001
EXP
PIC CONT
INDL FM DEM
LIM
AMP
ENV DET
DO DET
GNTE
CURR DET
DEF AMP
HPF
MIX AMP
GAIN CONT
DOC PNC SW
DIF AMP
MAIN FM DEM
LNC LIM
SUB LPF
FL3003
FL3004
DL3001
DL8001
FL8003 3.58MHz BPF
FL8001 4.21MHz
4.21MHz
629KHz
P.B BURST -6dB
REC BURST +6dB
MAIN BM
ACC
KILLER P-COMP
SCHMITT
SHIFT
ACC DET
X TAL VCO
BURST GATE DET
SUB BM
APC P-COMP
REC OUT
P.B OUT
VCO
BG PULSE
40 GATE
1/2
1/4
2H MOOD
A LINE
(5V)
(9V)
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12


MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
IC3002 AN3321S
QR3025 XN1213
Q3045 2SD1819 (HEAD SW PULSE)
DL3001
FL3004 SUB LPF
FL3003 SUB LPF
VR3007 50KB
VR3006 2KB
TP3007
Q3036 2SC3931 (MIX)
Q3038 2SD1820 (REC AMP)
Q3037 2SB1218 (REC AMP)
CURR DET
EXP
PIC CONT
INDL FM DEM
LIM
AMP
ENV DET
DO DET
GATE
MIX AMP
DEF AMP
HPF
GAIN CONT
DOC PNC SW
DIF AMP
MAIN FM DEM
LNC LIM
LPF
629KHz
FL8002 REC CHROMA LPF
Q8004 2SB1218 (REC AMP)
VR8001 1KB
REC:C
REC:Y
PB:Y
QR5001 XN1213
Q5001 XN1401
Q5002 XN1501
Q5003 XN1501
QR5002 XN1112
Q5007 XN1401
Q5008 XN1501
Q5006 XN1501
QR5003 XN1213
QR5004 XN1112
TP3004
TP3003
(SW1Ⓗ:ON) (SW2Ⓗ:ON)
(SW3Ⓗ:ON) (SW4Ⓗ:ON)
(REC/SW1 Ⓗ:ON)
(REC/SW2 Ⓗ:ON)
(PB:ON)
(REC:ON)
TO ROTARY ERASE HEAD
RE(F) GND
RE(S)
P5001 (TO VIDEO HEAD)
12 RE(S)
11 RE(F) GND
10 L1 (F)/CH2
9 L1 (S)/CH2
8 R1 (S)/CH1
7 R1 (F)/CH1
6 GND
5 L2F/CH4
4 L2S/CH4
3 R2F/CH3
2 R2S/CH3
1 GND
(A1) (A2) (A3) (A4)
(A LINE)
(5V)
(9V)
IC8001 AN6366NS
P.B BURST +6dB
REC BURST +6dB
MAIN BM
ACC
KILLER P-COMP
SCHMITT
SHIFT
APC P-COMP
REC OUT
P.B OUT
VCO
ACC DET
X TAL VCO
BURST GATE DET
SUB BM
2H MOOD
VR8002 50KB
AFC
X8001 VSX0134
Q8007 2SD1819 (3.58MHz AMP)
Q8002 2SD1819
D8002 MA141K
TP8001
IC8002 MN6163AS
BG PULSE
V GATE
MM
FS1
REC PC
PB
INV
45 GATE
1/321
1/2
D-PLL
FREQ DET
H OUT
AFC
H SYNC
HSW
TP8003
TP8002
FL8001 P.B.CHROMA LPF
Q5018 2SD1819 (PB AMP:C)
IC5001 AN3311S
HA SW
H.SW
AMP
HA.SW
PEA KING
AGC
DET
ENV DET OFF
TP3001
Q5015 2SC3931 (PB AMP:Y)
Q5014 2SD1819 (PB AMP:Y)
Q5013 2SC3931 (PHASE COMPARATOR)
QR5005 UN5213 (A.D.RECⓈ:ON)
FL5002
9
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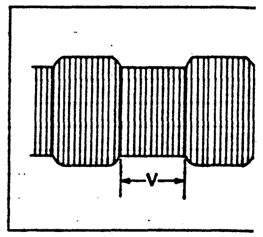
NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

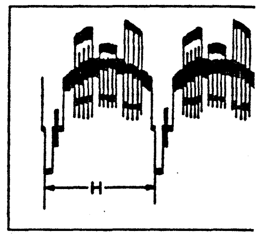
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH NTSC COLOR SIGNAL.

NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOR CHART.

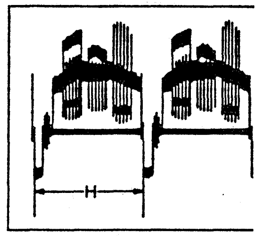
LUMINANCE & CHRON
WAVE FORM (REF No.



TP3001 PLAY
0.1V/5msec. div. 0.4Vp-p

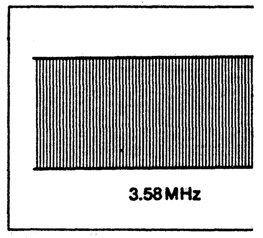


TP3002 REC
50mV/20μsec. div. 2Vp-p

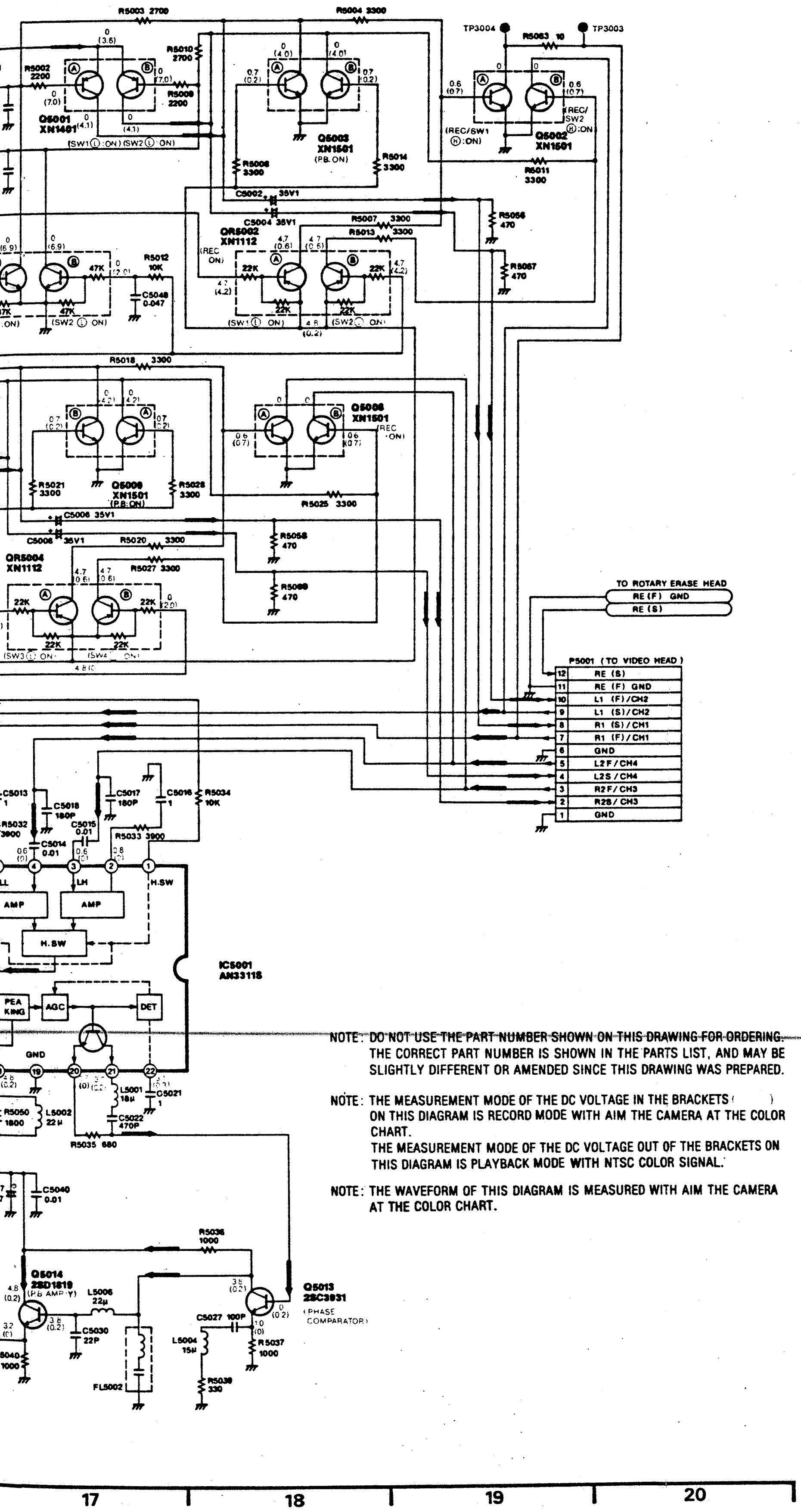


TP3002 PLAY
50mV/20μsec. div. 0.9Vp-p

LUMINANCE & CHRON
WAVE FORM (REF No.



TP8001 REC/PLAY
0.2V/10μsec. div. 0.72Vp-p


R5003 2700
R5004 3300
TP3004
TP3003
R5063 10
R5002 2200
R5010 2700
R5009 2200
Q5001 XN1401
(SW1 Ⓛ : ON) (SW2 Ⓛ : ON)
Q5003 XN1501 (P.B. ON)
R5008 3300
R5014 3300
(REC/SW1 Ⓗ : ON)
(REC/SW2 Ⓗ : ON)
Q5002 XN1501
R5011 3300
C5002 35V1
C5004 35V1
QR5002 XN1112
R5007 3300
R5013 3300
R5056 470
R5057 470
R5012 10K
C5048 0.047
(REC ON)
R5018 3300
Q5008 XN1501 (REC ON)
R5021 3300
Q5009 XN1501 (P.B: ON)
R5028 3300
R5025 3300
C5006 35V1
C5008 35V1
R5020 3300
R5027 3300
R5058 470
R5060 470
QR5004 XN1112
(SW3 Ⓛ ON)
(SW4 Ⓛ ON)
TO ROTARY ERASE HEAD
RE (F) GND
RE (S)
P5001 (TO VIDEO HEAD)
12 RE (S)
11 RE (F) GND
10 L1 (F)/CH2
9 L1 (S)/CH2
8 R1 (S)/CH1
7 R1 (F)/CH1
6 GND
5 L2F/CH4
4 L2S/CH4
3 R2F/CH3
2 R2S/CH3
1 GND
C5013 1
C5018 180P
R5032 3900
C5014 0.01
C5015 0.01
C5017 180P
C5016 1
R5034 10K
R5033 3900
LL
LH
H.SW
AMP
AMP
H.SW
IC5001 AN3311S
PEAKING
AGC
DET
GND
L5001 18µ
C5021 1
R5050 1800
L5002 22µ
C5022 470P
R5035 680
C5040 0.01
R5036 1000
Q5014 2SD1819 (P.B AMP Y)
L5006 22µ
C5030 22P
FL5002
R5040 1000
C5027 100P
L5004 15µ
R5037 1000
R5038 330
Q5013 2SC3931 (PHASE COMPARATOR)
17
18
19
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NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

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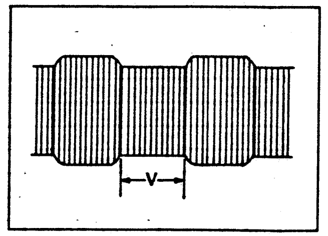
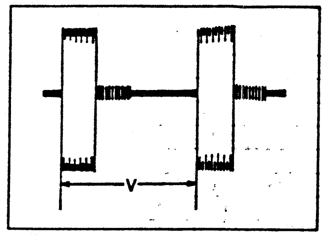
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH NTSC COLOR SIGNAL.

NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOR CHART.

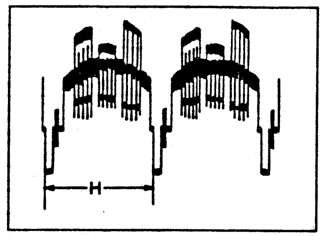
LUMINANCE & CHROMINANCE CIRCUIT TP (Test Point) WAVE FORM (REF No. 3000 Series)



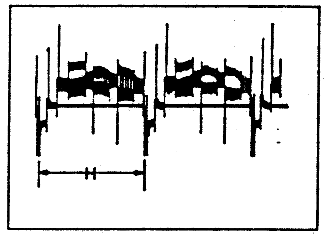
TP3001 PLAY
0.1V/5msec. div. 0.4Vp-p



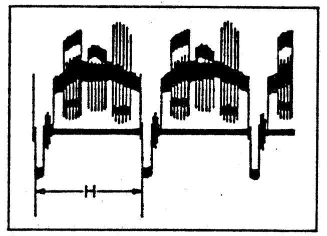
TP3003 REC
50mV/20msec. div. 0.2Vp-p



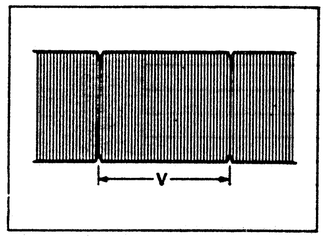
TP3002 REC
50mV/20µsec. div. 2Vp-p



TP3005 REC
20mV/20µsec. div. 0.8Vp-p

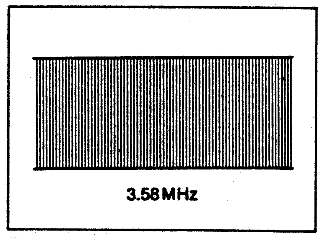


TP3002 PLAY
50mV/20µsec. div. 0.9Vp-p

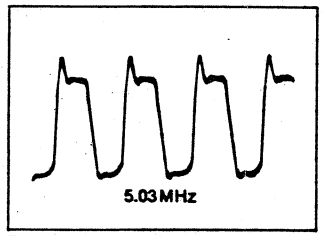


TP3007 REC
0.1V/5msec. div. 0.42Vp-p

LUMINANCE & CHROMINANCE CIRCUIT TP (Test Point) WAVE FORM (REF No. 8000 Series)

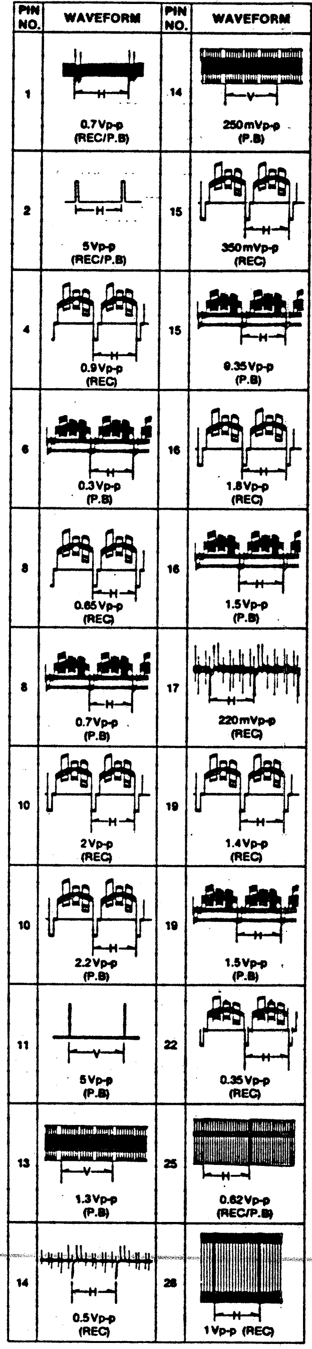


TP8001 REC/PLAY
0.2V/10µsec. div. 0.72Vp-p



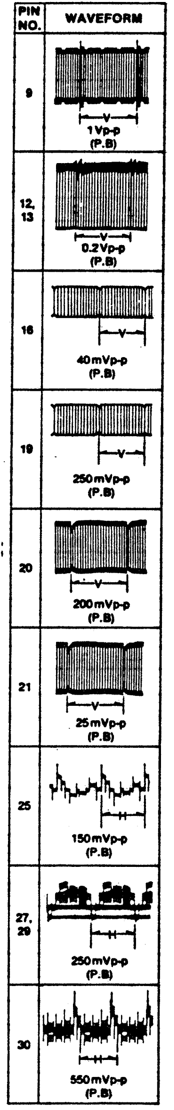
TP8003 REC/PLAY
20mV/1µsec. div. 0.7Vp-p

IC3001 (AN3211S)



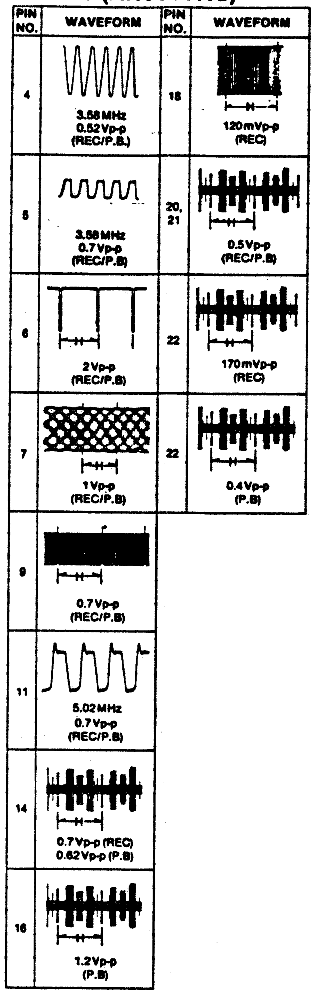
PIN NO.	WAVEFORM	PIN NO.	WAVEFORM
1	H 0.7Vp-p (REC/P.B)	14	V 250mVp-p (P.B)
2	H 5Vp-p (REC/P.B)	15	H 350mVp-p (REC)
4	H 0.9Vp-p (REC)	15	H 0.35Vp-p (P.B)
6	H 0.3Vp-p (P.B)	16	H 1.8Vp-p (REC)
8	H 0.65Vp-p (REC)	16	H 1.5Vp-p (P.B)
8	H 0.7Vp-p (P.B)	17	H 220mVp-p (REC)
10	H 2Vp-p (REC)	19	H 1.4Vp-p (REC)
10	H 2.2Vp-p (P.B)	19	H 1.5Vp-p (P.B)
11	V 5Vp-p (P.B)	22	H 0.35Vp-p (REC)
13	V 1.3Vp-p (P.B)	25	H 0.62Vp-p (REC/P.B)
14	H 0.5Vp-p (REC)	28	H 1Vp-p (REC)

IC3002 (AN3321S)



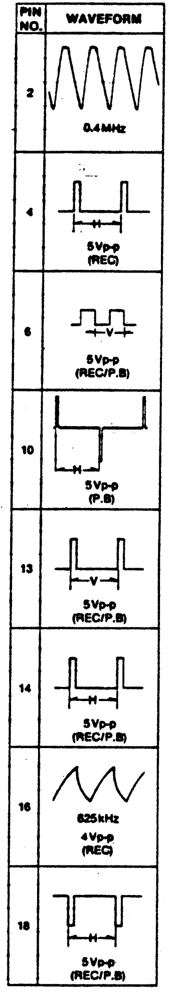
PIN NO.	WAVEFORM
9	V 1Vp-p (P.B)
12, 13	V 0.2Vp-p (P.B)
16	V 40mVp-p (P.B)
19	V 250mVp-p (P.B)
20	V 200mVp-p (P.B)
21	V 25mVp-p (P.B)
25	H 150mVp-p (P.B)
27, 29	H 250mVp-p (P.B)
30	H 550mVp-p (P.B)

IC8001 (AN6366NS)



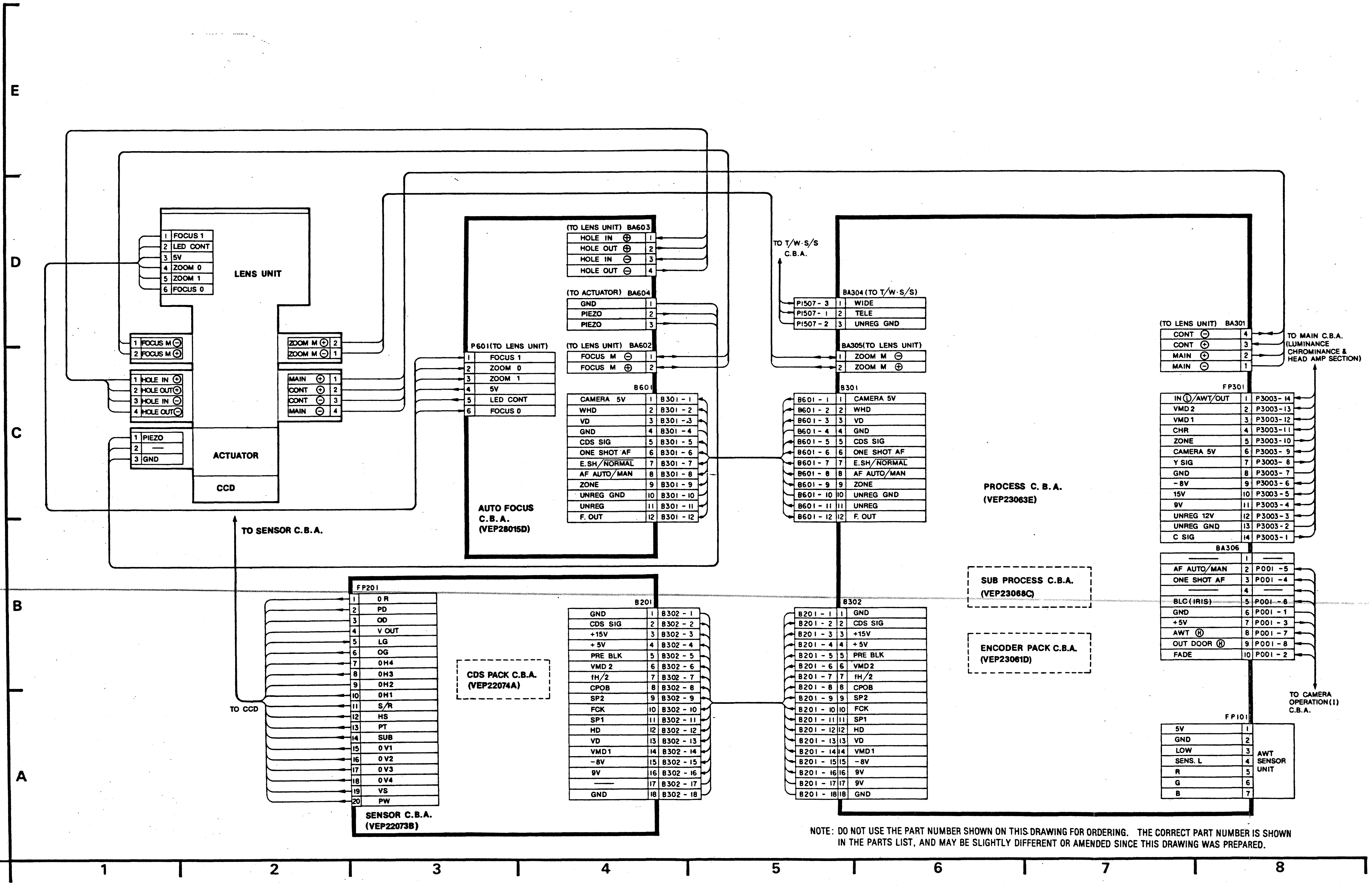
PIN NO.	WAVEFORM	PIN NO.	WAVEFORM
4	3.58MHz 0.52Vp-p (REC/P.B.)	18	H 120mVp-p (REC)
5	3.58MHz 0.7Vp-p (REC/P.B)	20, 21	H 0.5Vp-p (REC/P.B)
6	H 2Vp-p (REC/P.B)	22	H 170mVp-p (REC)
7	H 1Vp-p (REC/P.B)	22	H 0.4Vp-p (P.B)
9	H 0.7Vp-p (REC/P.B)		
11	5.02MHz 0.7Vp-p (REC/P.B)		
14	H 0.7Vp-p (REC) 0.62Vp-p (P.B)		
16	H 1.2Vp-p (P.B)		

IC8002 (MN6163S)

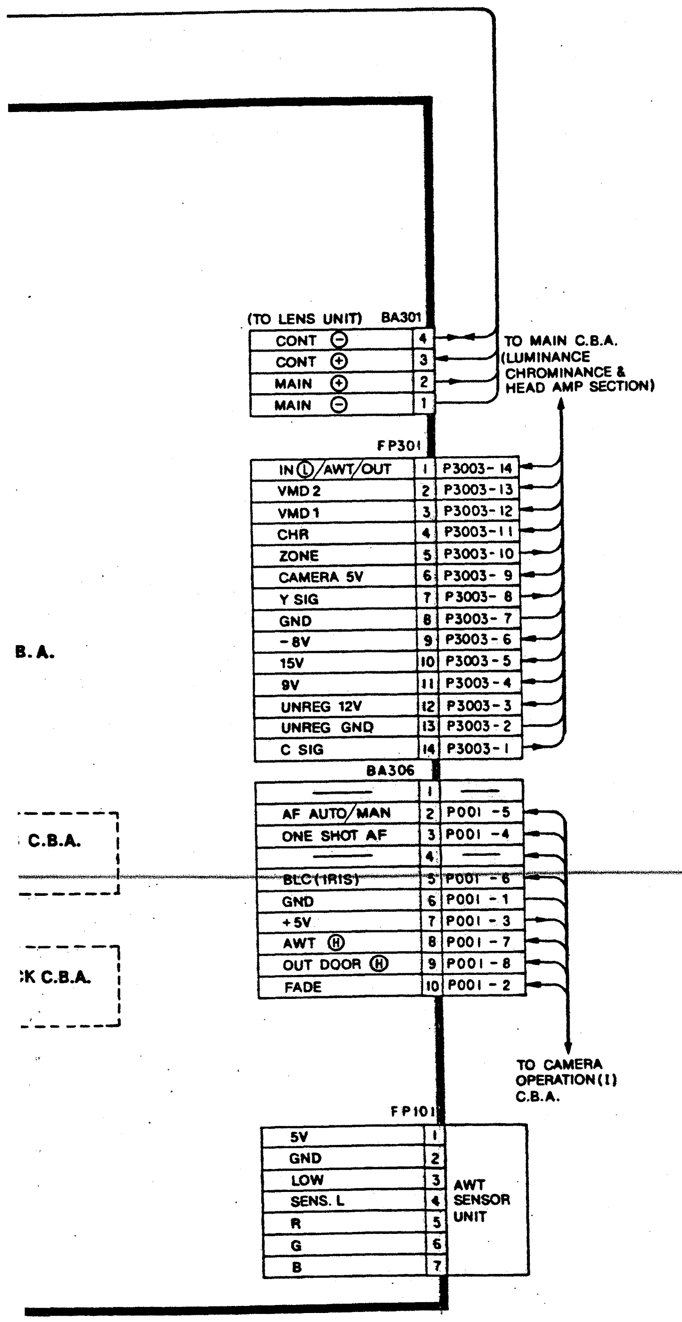


PIN NO.	WAVEFORM
2	0.4MHz
4	H 5Vp-p (REC)
6	V 5Vp-p (REC/P.B)
10	H 5Vp-p (P.B)
13	V 5Vp-p (REC/P.B)
14	H 5Vp-p (REC/P.B)
16	625kHz 4Vp-p (REC)
18	H 5Vp-p (REC/P.B)

CAMERA INTERCONNECTION SCHEMATIC DIAGRAM


E
D
C
B
A
1
2
3
4
5
6
7
8
LENS UNIT
1 FOCUS 1
2 LED CONT
3 5V
4 ZOOM 0
5 ZOOM 1
6 FOCUS 0
1 FOCUS M ⊖
2 FOCUS M ⊕
ZOOM M ⊕ 2
ZOOM M ⊖ 1
1 HOLE IN ⊕
2 HOLE OUT ⊕
3 HOLE IN ⊖
4 HOLE OUT ⊖
MAIN ⊕ 1
CONT ⊕ 2
CONT ⊖ 3
MAIN ⊖ 4
1 PIEZO
2 —
3 GND
ACTUATOR
CCD
TO SENSOR C.B.A.
(TO LENS UNIT) BA603
HOLE IN ⊕ 1
HOLE OUT ⊕ 2
HOLE IN ⊖ 3
HOLE OUT ⊖ 4
(TO ACTUATOR) BA604
GND 1
PIEZO 2
PIEZO 3
P601(TO LENS UNIT)
1 FOCUS 1
2 ZOOM 0
3 ZOOM 1
4 5V
5 LED CONT
6 FOCUS 0
(TO LENS UNIT) BA602
FOCUS M ⊖ 1
FOCUS M ⊕ 2
B601
CAMERA 5V 1 B301 - 1
WHD 2 B301 - 2
VD 3 B301 - 3
GND 4 B301 - 4
CDS SIG 5 B301 - 5
ONE SHOT AF 6 B301 - 6
E.SH/NORMAL 7 B301 - 7
AF AUTO/MAN 8 B301 - 8
ZONE 9 B301 - 9
UNREG GND 10 B301 - 10
UNREG 11 B301 - 11
F. OUT 12 B301 - 12
AUTO FOCUS C.B.A. (VEP28015D)
TO T/W·S/S C.B.A.
BA304 (TO T/W·S/S)
P1507 - 3 1 WIDE
P1507 - 1 2 TELE
P1507 - 2 3 UNREG GND
BA305(TO LENS UNIT)
1 ZOOM M ⊖
2 ZOOM M ⊕
B301
B601 - 1 1 CAMERA 5V
B601 - 2 2 WHD
B601 - 3 3 VD
B601 - 4 4 GND
B601 - 5 5 CDS SIG
B601 - 6 6 ONE SHOT AF
B601 - 7 7 E.SH/NORMAL
B601 - 8 8 AF AUTO/MAN
B601 - 9 9 ZONE
B601 - 10 10 UNREG GND
B601 - 11 11 UNREG
B601 - 12 12 F. OUT
PROCESS C. B. A. (VEP23063E)
SUB PROCESS C.B.A. (VEP23068C)
ENCODER PACK C.B.A. (VEP23061D)
(TO LENS UNIT) BA301
CONT ⊖ 4
CONT ⊕ 3
MAIN ⊕ 2
MAIN ⊖ 1
TO MAIN C.B.A. (LUMINANCE CHROMINANCE & HEAD AMP SECTION)
FP301
IN ①/AWT/OUT 1 P3003 - 14
VMD 2 2 P3003 - 13
VMD 1 3 P3003 - 12
CHR 4 P3003 - 11
ZONE 5 P3003 - 10
CAMERA 5V 6 P3003 - 9
Y SIG 7 P3003 - 8
GND 8 P3003 - 7
-8V 9 P3003 - 6
15V 10 P3003 - 5
9V 11 P3003 - 4
UNREG 12V 12 P3003 - 3
UNREG GND 13 P3003 - 2
C SIG 14 P3003 - 1
BA306
— 1 —
AF AUTO/MAN 2 P001 - 5
ONE SHOT AF 3 P001 - 4
— 4 —
BLC (IRIS) 5 P001 - 6
GND 6 P001 - 1
+5V 7 P001 - 3
AWT Ⓗ 8 P001 - 7
OUT DOOR Ⓗ 9 P001 - 8
FADE 10 P001 - 2
TO CAMERA OPERATION (1) C.B.A.
FP101
5V 1
GND 2
LOW 3
SENS. L 4
R 5
G 6
B 7
AWT SENSOR UNIT
FP201
1 0 R
2 PD
3 OD
4 V OUT
5 LG
6 OG
7 0 H4
8 0 H3
9 0 H2
10 0 H1
11 S/R
12 HS
13 PT
14 SUB
15 0 V1
16 0 V2
17 0 V3
18 0 V4
19 VS
20 PW
TO CCD
CDS PACK C.B.A. (VEP22074A)
SENSOR C.B.A. (VEP22073B)
B201
GND 1 B302 - 1
CDS SIG 2 B302 - 2
+15V 3 B302 - 3
+5V 4 B302 - 4
PRE BLK 5 B302 - 5
VMD 2 6 B302 - 6
fH/2 7 B302 - 7
CPOB 8 B302 - 8
SP2 9 B302 - 9
FCK 10 B302 - 10
SP1 11 B302 - 11
HD 12 B302 - 12
VD 13 B302 - 13
VMD 1 14 B302 - 14
-8V 15 B302 - 15
9V 16 B302 - 16
— 17 B302 - 17
GND 18 B302 - 18
B302
B201 - 1 1 GND
B201 - 2 2 CDS SIG
B201 - 3 3 +15V
B201 - 4 4 +5V
B201 - 5 5 PRE BLK
B201 - 6 6 VMD 2
B201 - 7 7 fH/2
B201 - 8 8 CPOB
B201 - 9 9 SP2
B201 - 10 10 FCK
B201 - 11 11 SP1
B201 - 12 12 HD
B201 - 13 13 VD
B201 - 14 14 VMD 1
B201 - 15 15 -8V
B201 - 16 16 9V
B201 - 17 17 9V
B201 - 18 18 GND

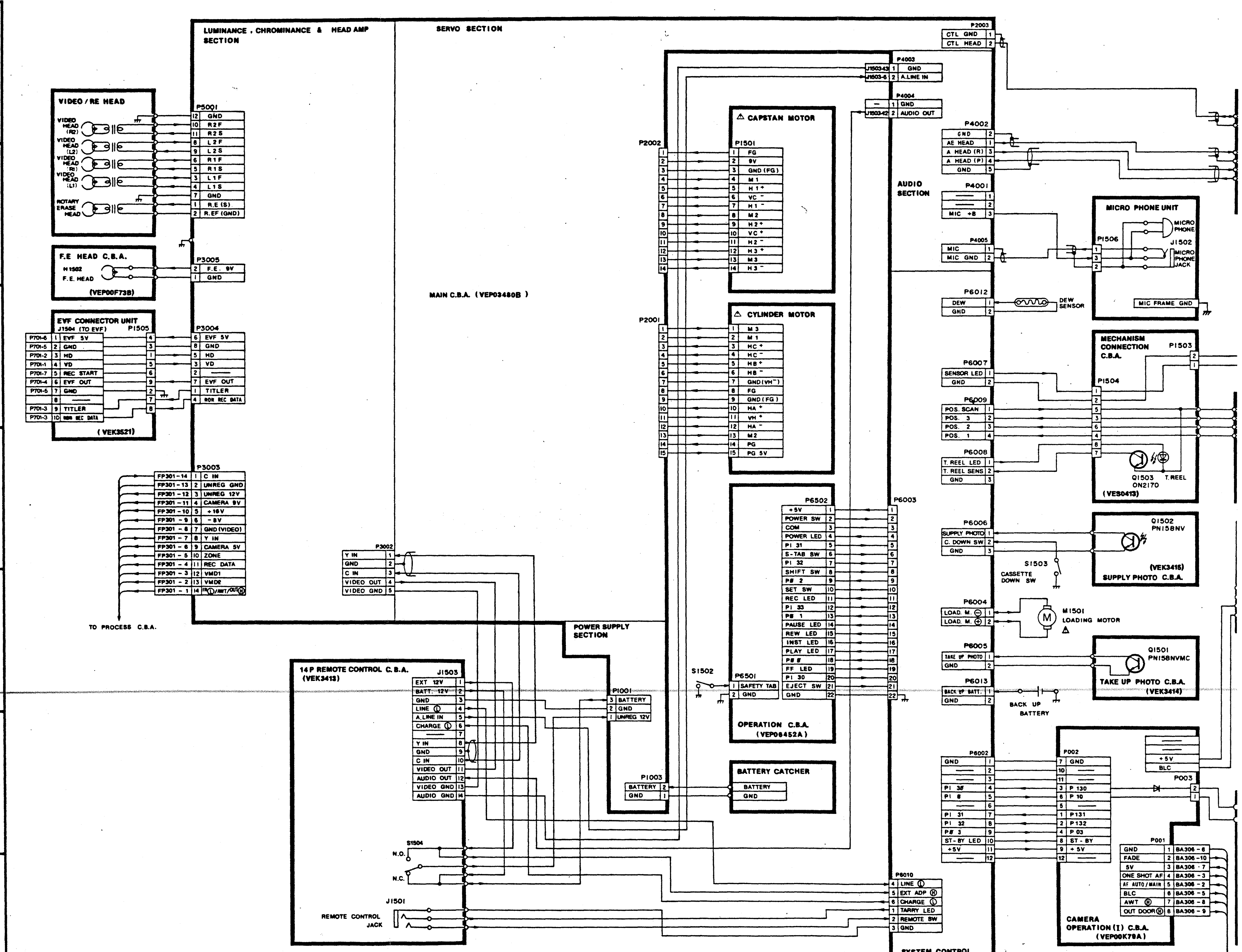
NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.



(TO LENS UNIT) BA301
CONT ⊖
CONT ⊕
MAIN ⊕
MAIN ⊖
TO MAIN C.B.A. (LUMINANCE CHROMINANCE & HEAD AMP SECTION)
FP301
IN①/AWT/OUT
VMD 2
VMD 1
CHR
ZONE
CAMERA 5V
Y SIG
GND
-8V
15V
9V
UNREG 12V
UNREG GND
C SIG
BA306
AF AUTO/MAN
ONE SHOT AF
BLC(IRIS)
GND
+5V
AWT Ⓗ
OUT DOOR Ⓗ
FADE
TO CAMERA OPERATION (I) C.B.A.
FP101
5V
GND
LOW
SENS. L
R
G
B
AWT SENSOR UNIT
B. A.
C.B.A.
K C.B.A.

AWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN
ENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

VTR INTERCONNECTION SCHEMATIC DIAGRAM



LUMINANCE, CHROMINANCE & HEAD AMP SECTION
SERVO SECTION
VIDEO / RE HEAD
VIDEO HEAD (R2)
VIDEO HEAD (L2)
VIDEO HEAD (R1)
VIDEO HEAD (L1)
ROTARY ERASE HEAD
P5001
F.E HEAD C.B.A.
F.E. HEAD
(VEP00F73B)
P3005
EVF CONNECTOR UNIT
J1504 (TO EVF)
P1505
P3004
(VEK3S21)
P3003
TO PROCESS C.B.A.
MAIN C.B.A. (VEP03480B)
P3002
POWER SUPPLY SECTION
14P REMOTE CONTROL C.B.A. (VEK3413)
J1503
S1504
N.O.
N.C.
J1501
REMOTE CONTROL JACK
P1001
P1003
S1502
P2002
P2001
CAPSTAN MOTOR
P1501
CYLINDER MOTOR
P6502
P6501
OPERATION C.B.A. (VEP08452A)
BATTERY CATCHER
AUDIO SECTION
P2003
P4003
P4004
P4002
P4001
P4005
P6012
P6007
P6009
P6008
P6006
P6004
P6005
P6013
P6003
P6002
P6010
SYSTEM CONTROL SECTION
MICRO PHONE UNIT
P1506
J1502
MICRO PHONE
MICRO PHONE JACK
MIC FRAME GND
DEW SENSOR
MECHANISM CONNECTION C.B.A.
P1503
P1504
Q1503 ON2170
T.REEL
(VES0413)
Q1502 PN158NV
(VEK3415)
SUPPLY PHOTO C.B.A.
S1503
CASSETTE DOWN SW
M1501 LOADING MOTOR
Q1501 PN158NVMC
TAKE UP PHOTO C.B.A. (VEK3414)
BACK UP BATTERY
P002
P003
P001
CAMERA OPERATION (I) C.B.A. (VEP00K79A)
TO PROCESS
G
F
E
D
C
B
A

IMPORTANT SAFETY NOTICE:
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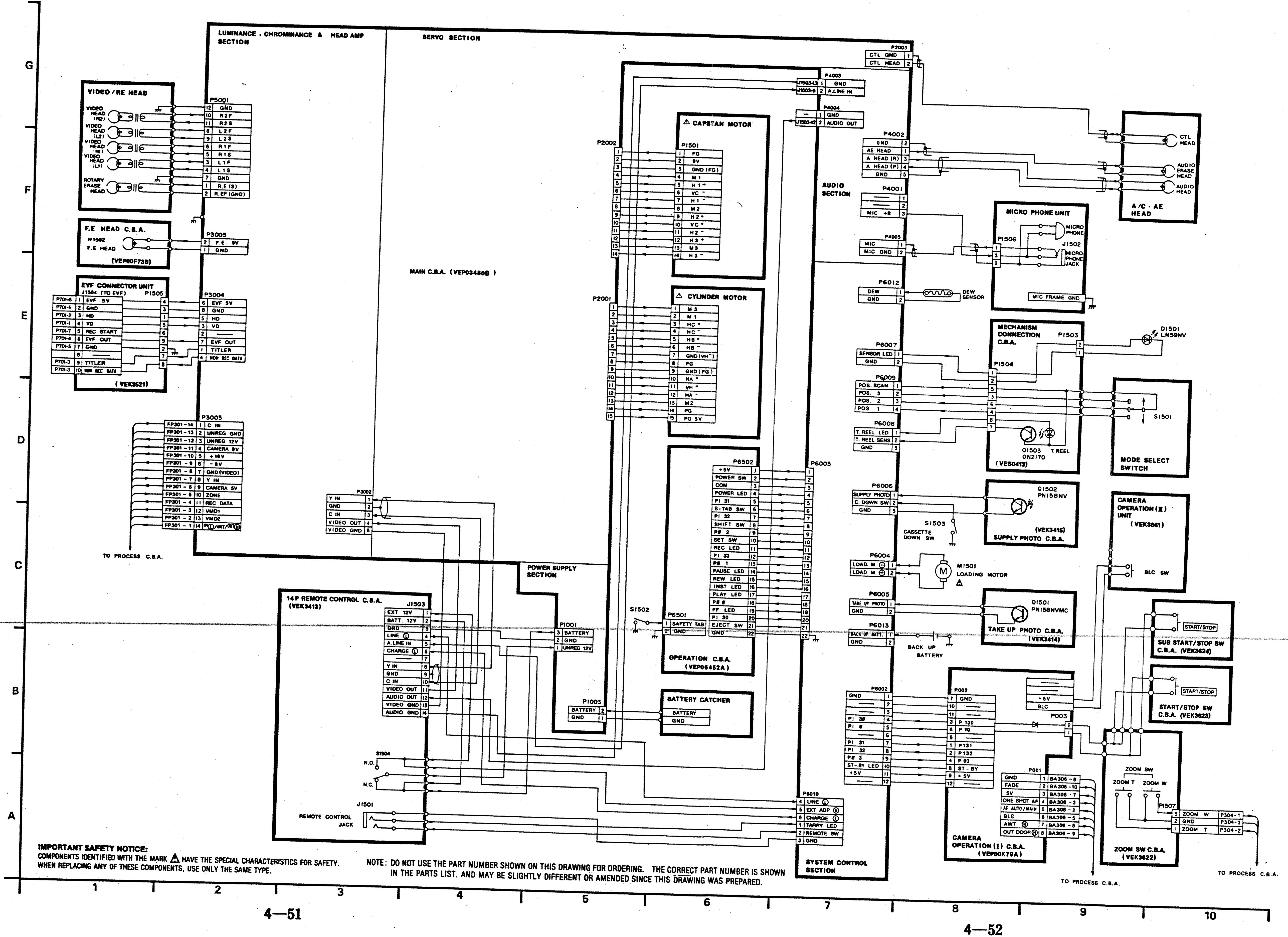
VTR INTERCONNECTION SCHEMATIC DIAGRAM


G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
LUMINANCE . CHROMINANCE & HEAD AMP SECTION
SERVO SECTION
MAIN C.B.A. (VEP03480B)
VIDEO / RE HEAD
VIDEO HEAD (R2)
VIDEO HEAD (L2)
VIDEO HEAD (R1)
VIDEO HEAD (L1)
ROTARY ERASE HEAD
P5001
12 GND
10 R2F
11 R2S
8 L2F
9 L2S
6 R1F
5 R1S
3 L1F
4 L1S
7 GND
1 R.E (S)
2 R.EF (GND)
F.E HEAD C.B.A.
H1502
F.E. HEAD
(VEP00F73B)
P3005
2 F.E. 9V
1 GND
EVF CONNECTOR UNIT
J1504 (TO EVF)
P1505
P701-6 1 EVF 5V
P701-5 2 GND
P701-2 3 HD
P701-1 4 VD
P701-7 5 REC START
P701-4 6 EVF OUT
P701-5 7 GND
8
P701-3 9 TITLER
P701-3 10 NOR REC DATA
(VEK3521)
P3004
6 EVF 5V
8 GND
5 HD
3 VD
2
7 EVF OUT
1 TITLER
4 NOR REC DATA
P3003
FP301-14 1 C IN
FP301-13 2 UNREG GND
FP301-12 3 UNREG 12V
FP301-11 4 CAMERA 9V
FP301-10 5 +16V
FP301-9 6 -8V
FP301-8 7 GND (VIDEO)
FP301-7 8 Y IN
FP301-6 9 CAMERA 5V
FP301-5 10 ZONE
FP301-4 11 REC DATA
FP301-3 12 VMD1
FP301-2 13 VMD2
FP301-1 14
TO PROCESS C.B.A.
P3002
Y IN 1
GND 2
C IN 3
VIDEO OUT 4
VIDEO GND 5
P2002
P2001
△ CAPSTAN MOTOR
P1501
1 FG
2 9V
3 GND (FG)
4 M1
5 H1+
6 VC-
7 H1-
8 M2
9 H2+
10 VC+
11 H2-
12 H3+
13 M3
14 H3-
△ CYLINDER MOTOR
1 M3
2 M1
3 HC+
4 HC-
5 HB+
6 HB-
7 GND (VH-)
8 FG
9 GND (FG)
10 HA+
11 VH+
12 HA-
13 M2
14 PG
15 PG 5V
P6502
+5V 1
POWER SW 2
COM 3
POWER LED 4
PI 31 5
S-TAB SW 6
PI 32 7
SHIFT SW 8
P# 2 9
SET SW 10
REC LED 11
PI 33 12
P# 1 13
PAUSE LED 14
REW LED 15
INST LED 16
PLAY LED 17
P# # 18
FF LED 19
PI 30 20
EJECT SW 21
GND 22
P6003
S1502
P6501
1 SAFETY TAB
2 GND
OPERATION C.B.A. (VEP06452A)
POWER SUPPLY SECTION
P1001
3 BATTERY
2 GND
1 UNREG 12V
P1003
BATTERY 2
GND 1
BATTERY CATCHER
BATTERY
GND
14P REMOTE CONTROL C.B.A. (VEK3413)
J1503
EXT 12V 1
BATT. 12V 2
GND 3
LINE ① 4
A.LINE IN 5
CHARGE ① 6
7
Y IN 8
GND 9
C IN 10
VIDEO OUT 11
AUDIO OUT 12
VIDEO GND 13
AUDIO GND 14
S1504
N.O.
N.C.
J1501
REMOTE CONTROL JACK
P6010
4 LINE ①
5 EXT ADP ①
6 CHARGE ①
1 TARRY LED
2 REMOTE SW
3 GND
SYSTEM CONTROL SECTION
AUDIO SECTION
P2003
CTL GND 1
CTL HEAD 2
P4003
J1503-13 1 GND
J1503-5 2 A.LINE IN
P4004
1 GND
J1503-12 2 AUDIO OUT
P4002
GND 2
AE HEAD 1
A HEAD (R) 3
A HEAD (P) 4
GND 5
P4001
1
2
MIC +B 3
P4005
MIC 1
MIC GND 2
A/C · AE HEAD
CTL HEAD
AUDIO ERASE HEAD
AUDIO HEAD
MICRO PHONE UNIT
P1506
MICRO PHONE
J1502
MICRO PHONE JACK
MIC FRAME GND
P6012
DEW 1
GND 2
DEW SENSOR
MECHANISM CONNECTION C.B.A.
P1503
P1504
D1501 LN59NV
P6007
SENSOR LED 1
GND 2
P6009
POS. SCAN 1
POS. 3 2
POS. 2 3
POS. 1 4
P6008
T. REEL LED 1
T. REEL SENS 2
GND 3
Q1503 ON2170
T. REEL
(VES0413)
S1501
MODE SELECT SWITCH
P6006
SUPPLY PHOTO 1
C. DOWN SW 2
GND 3
S1503
CASSETTE DOWN SW
Q1502 PN158NV
(VEK3415)
SUPPLY PHOTO C.B.A.
CAMERA OPERATION (Ⅱ) UNIT (VEK3681)
BLC SW
P6004
LOAD. M. ⊖ 1
LOAD. M. ⊕ 2
M1501 LOADING MOTOR △
P6005
TAKE UP PHOTO 1
GND 2
Q1501 PN158NVMC
TAKE UP PHOTO C.B.A. (VEK3414)
P6013
BACK UP BATT. 1
GND 2
BACK UP BATTERY
SUB START/STOP SW C.B.A. (VEK3624)
START/STOP
START/STOP SW C.B.A. (VEK3623)
P6002
GND 1
2
3
PI 30 4
PI 5
6
PI 31 7
PI 32 8
P# 3 9
ST-BY LED 10
+5V 11
12
P002
7 GND
10
11
3 P130
6 P10
5
1 P131
2 P132
4 P03
8 ST-BY
9 +5V
12
+5V
BLC
P003
P001
GND 1 BA306-6
FADE 2 BA306-10
5V 3 BA306-7
ONE SHOT AF 4 BA306-3
AF AUTO/MAIN 5 BA306-2
AWT 6 BA306-5
BLC 7 BA306-8
OUT DOOR 8 BA306-9
CAMERA OPERATION (Ⅰ) C.B.A. (VEP00K79A)
ZOOM SW
ZOOM T
ZOOM W
P1507
3 ZOOM W P304-1
2 GND P304-3
1 ZOOM T P304-2
ZOOM SW C.B.A. (VEK3622)
TO PROCESS C.B.A.
TO PROCESS C.B.A.

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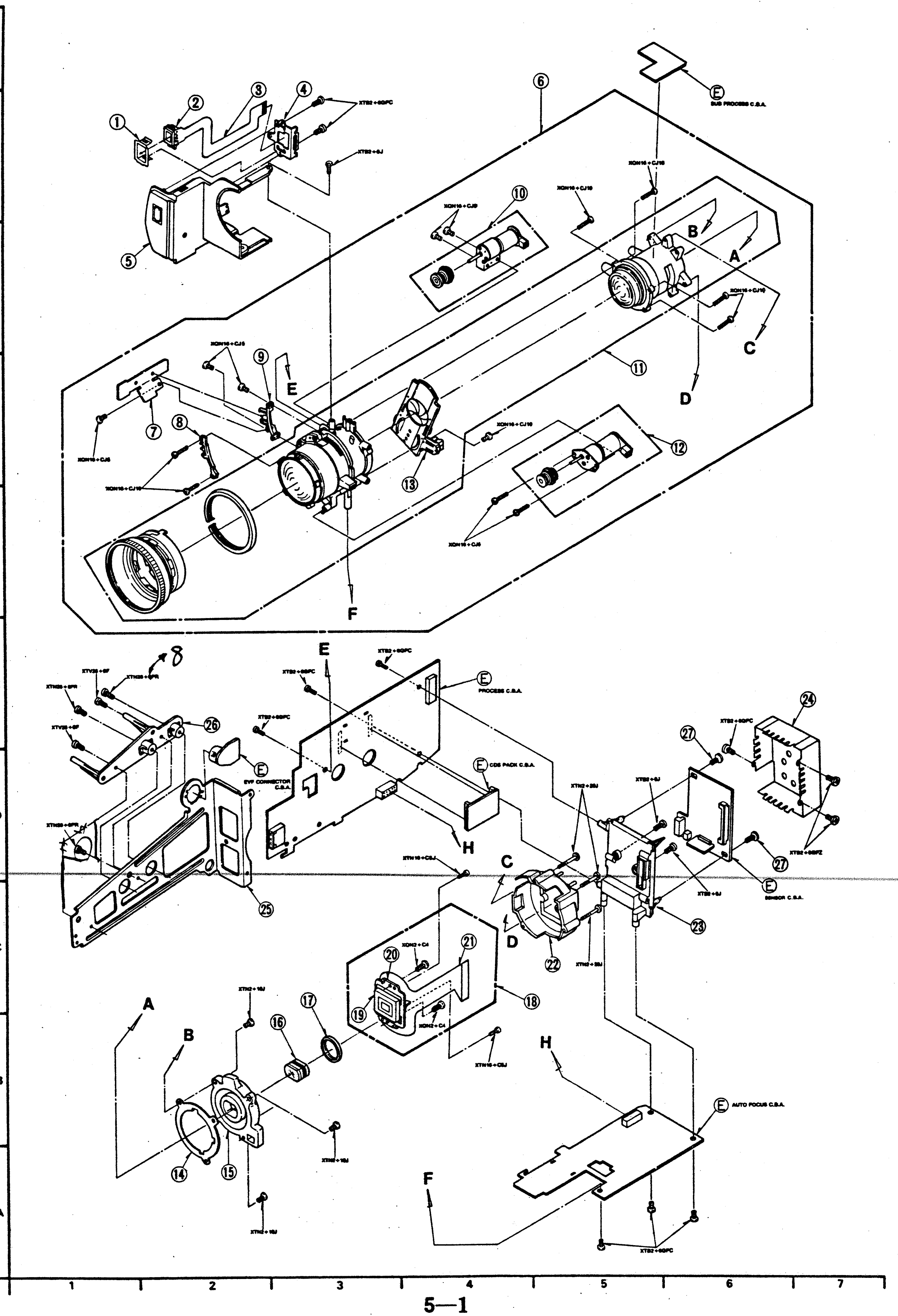
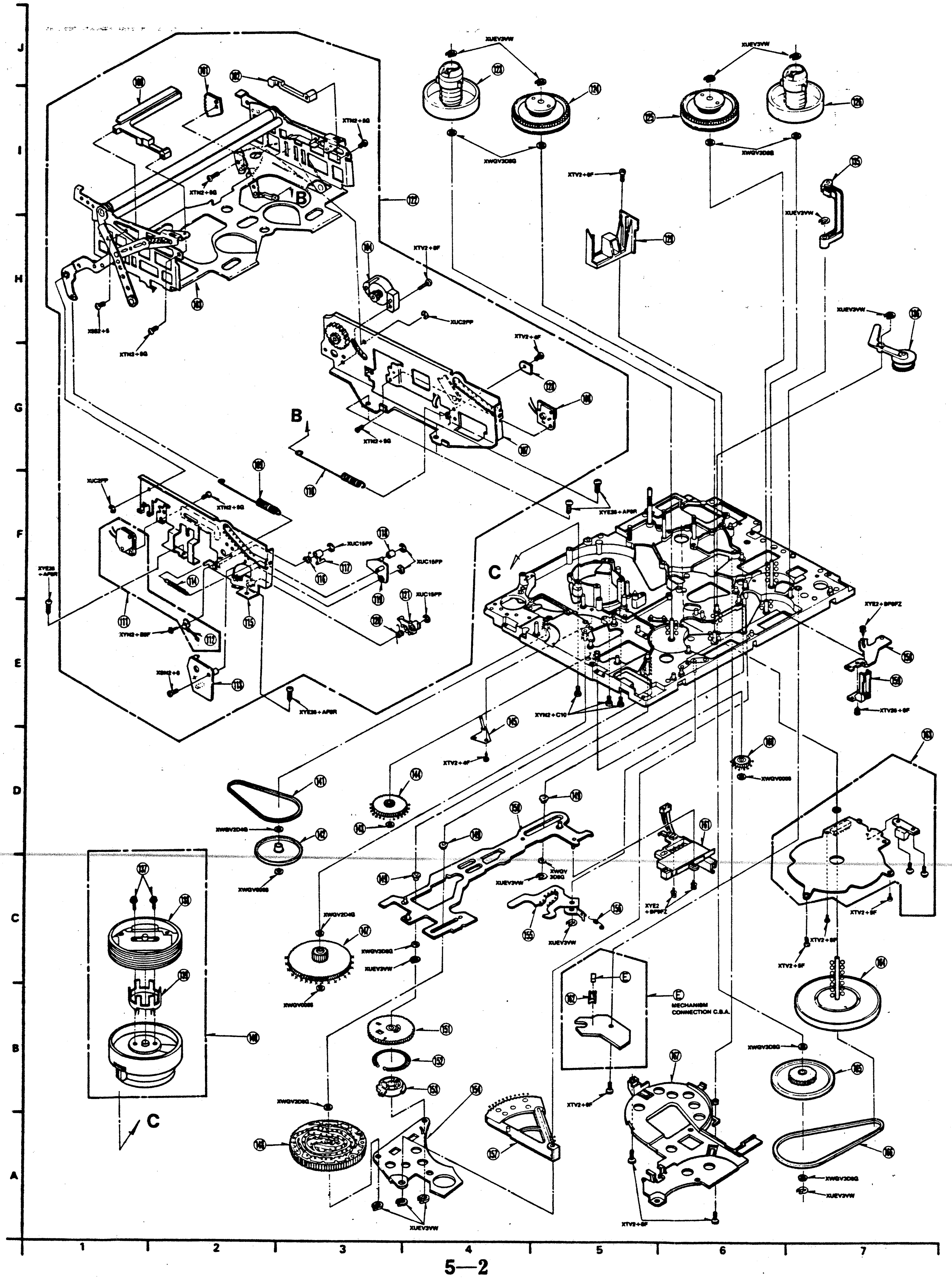
EXPLODED VIEWS

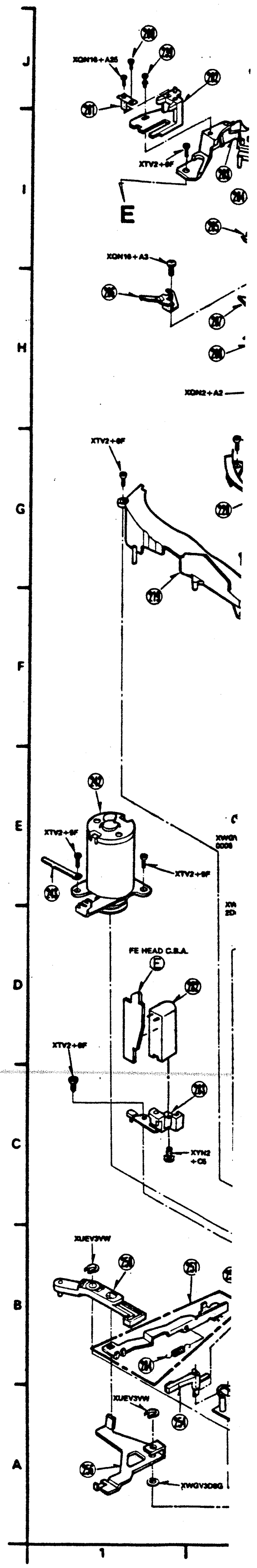
❶ Camera Lens Section

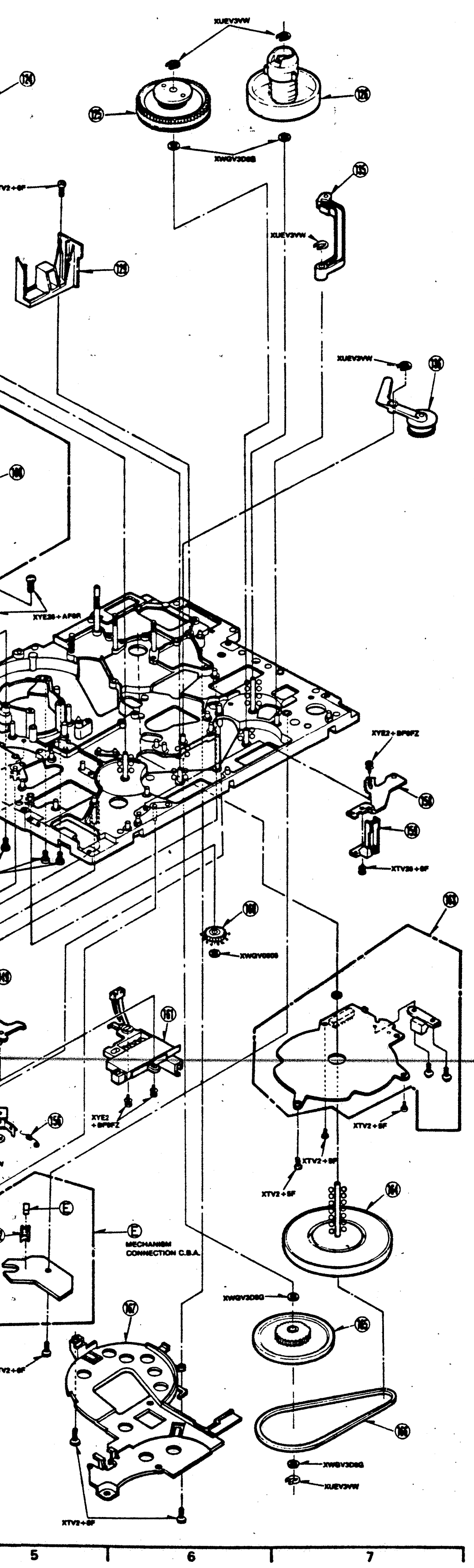

SUB PROCESS C.B.A.
PROCESS C.B.A.
EVF CONNECTOR C.B.A.
CCD PACK C.B.A.
SENSOR C.B.A.
AUTO FOCUS C.B.A.
A
B
C
D
E
F
H

❷ VTR Mechanism Section (1)


MECHANISM CONNECTION C.B.A.
B
C

❸ VTR Mech


FE HEAD C.B.A.
E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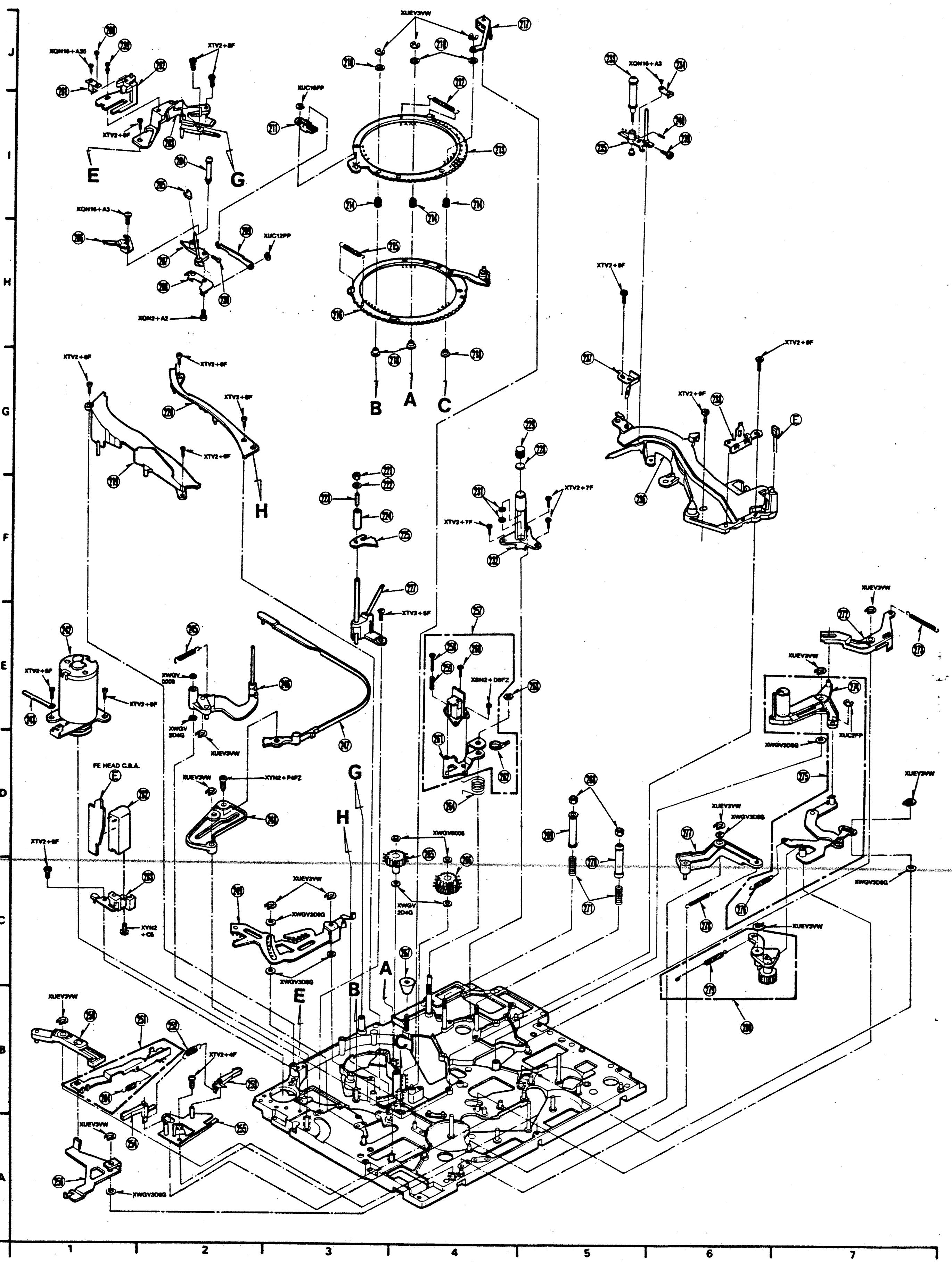
XWGV3D8G
XUEV3VW
XTV2+8F
XYE2+8F6FZ
XTV26+8F
XWGV0000
XYE2+8P6FZ
XTV2+8F
MECHANISM CONNECTION C.B.A.
XWGV3D8G
XUEV3VW
XTV2+8F
E
5
6
7

❸ VTR Mechanism Section (2)


XUEV3VW
XQN16+A35
XTV2+8F
XUC16FP
XQN16+A3
XUC12FP
XQN2+A2
XTV2+8F
XTV2+7F
XTV2+5F
XSN2+D8FZ
XWGV 0008
XWGV 2D4G
XYN2+F4FZ
FE HEAD C.B.A.
XYN2 +C5
XWGV0008
XWGV3D8G
XUC2FP
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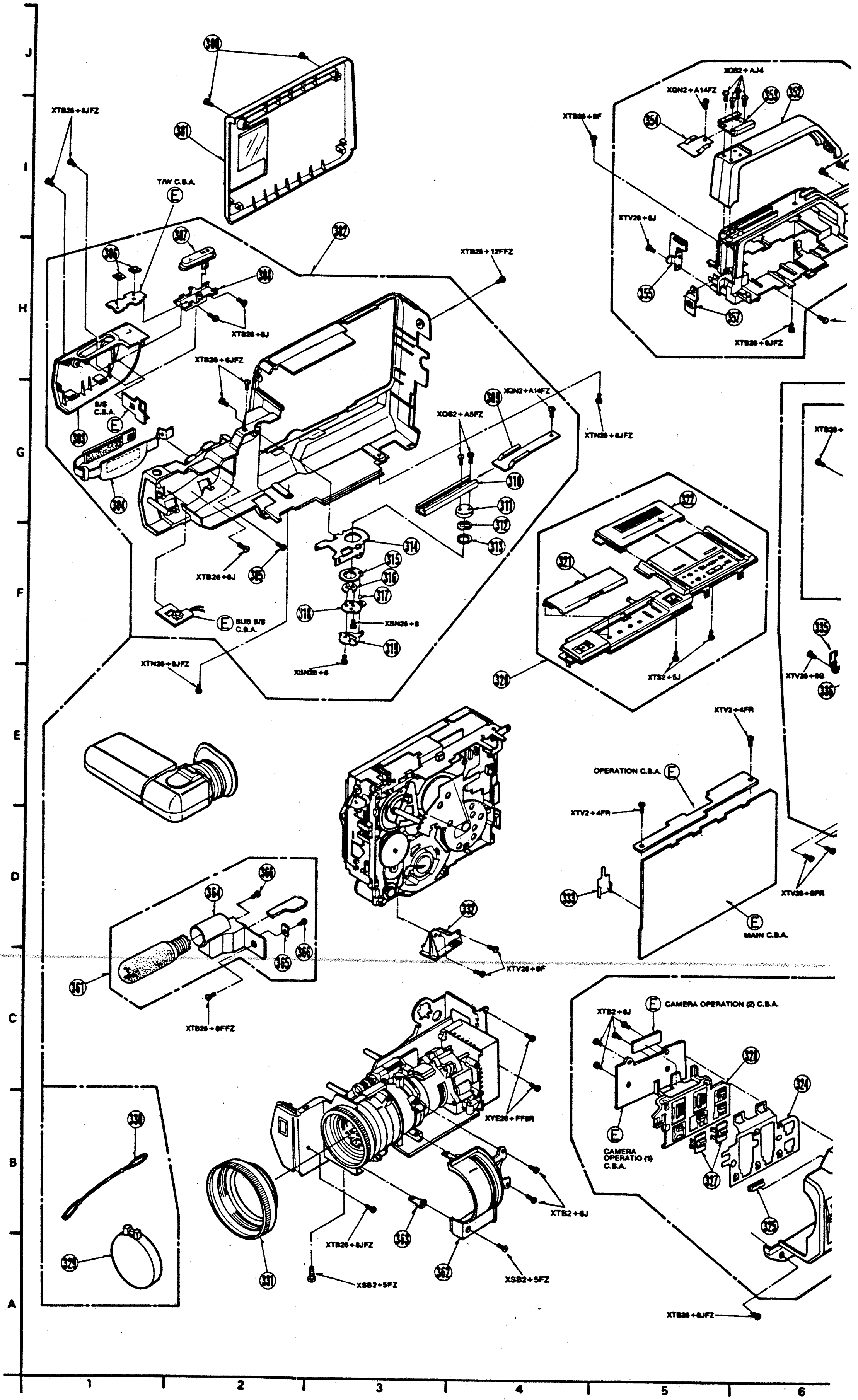
❹ Chassis & Frame Section


XTB26+8JFZ
T/W C.B.A.
XTB26+8J
XTB26+12FFZ
XTB26+8JFZ
S/S C.B.A.
XQN2+A14FZ
XQS2+A5FZ
XTN26+8JFZ
XTB26+8J
SUB S/S C.B.A.
XSN26+8
XTN26+8JFZ
XTS2+5J
XQS2+AJ4
XQN2+A14FZ
XTB26+8F
XTV26+8J
XTB26+8JFZ
XTV26+8G
XTV2+4FR
OPERATION C.B.A.
XTV26+8FR
MAIN C.B.A.
XTV26+8F
XTB26+8FFZ
CAMERA OPERATION (2) C.B.A.
XTB2+8J
CAMERA OPERATIO (1) C.B.A.
XYE26+FF8R
XTB2+8J
XTB26+8JFZ
XSB2+5FZ
XSB2+5FZ
XTB26+8JFZ
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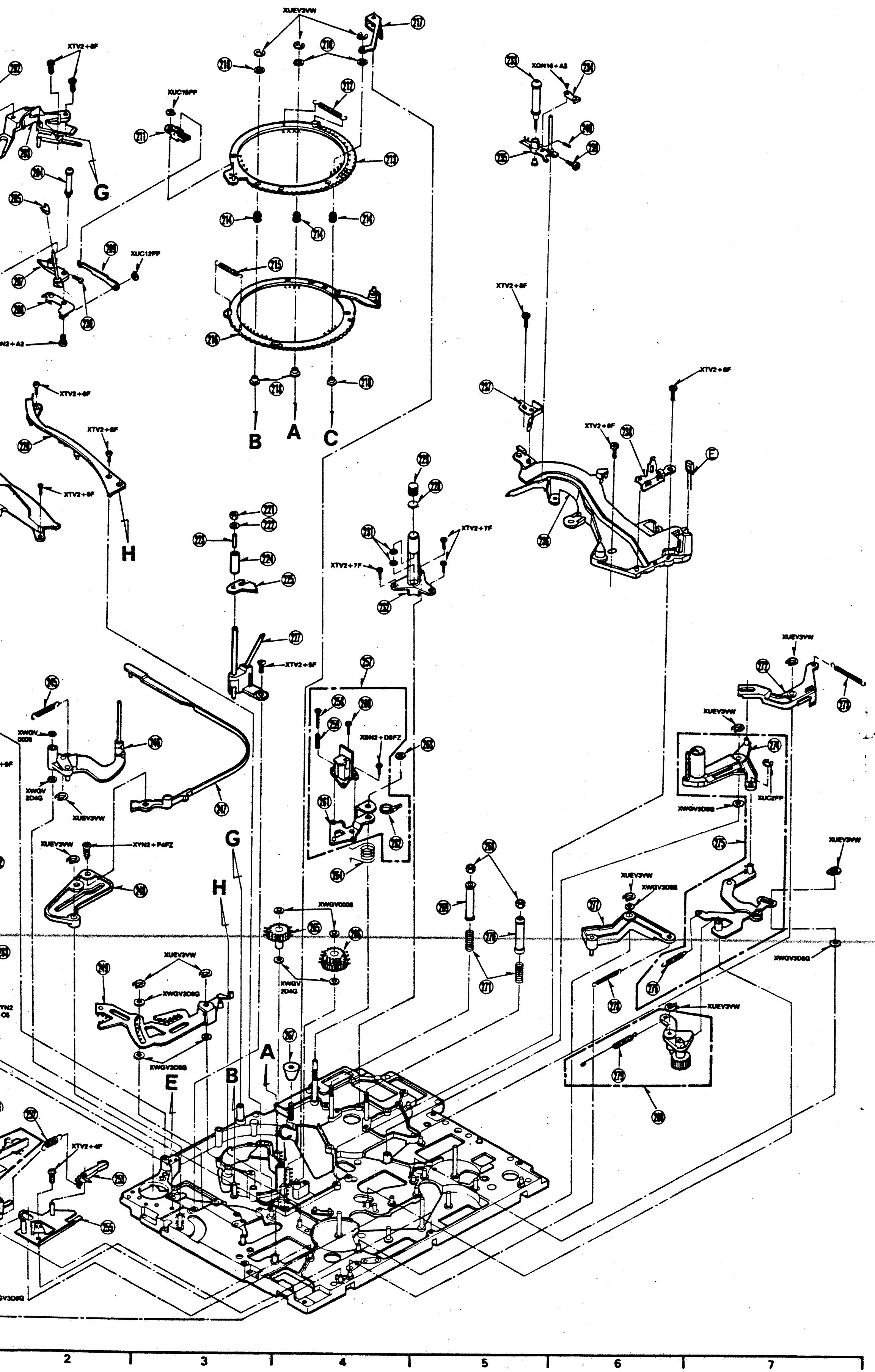
echanism Section (2)


XUEV3VW
XTV2+8F
XUC16FP
XUC12FP
XQN16+A3
XTV2+7F
XTV2+7F
XSN2+D8FZ
XWGV3D8G
XUC2FP
XYN2+F4FZ
XTV2+4F
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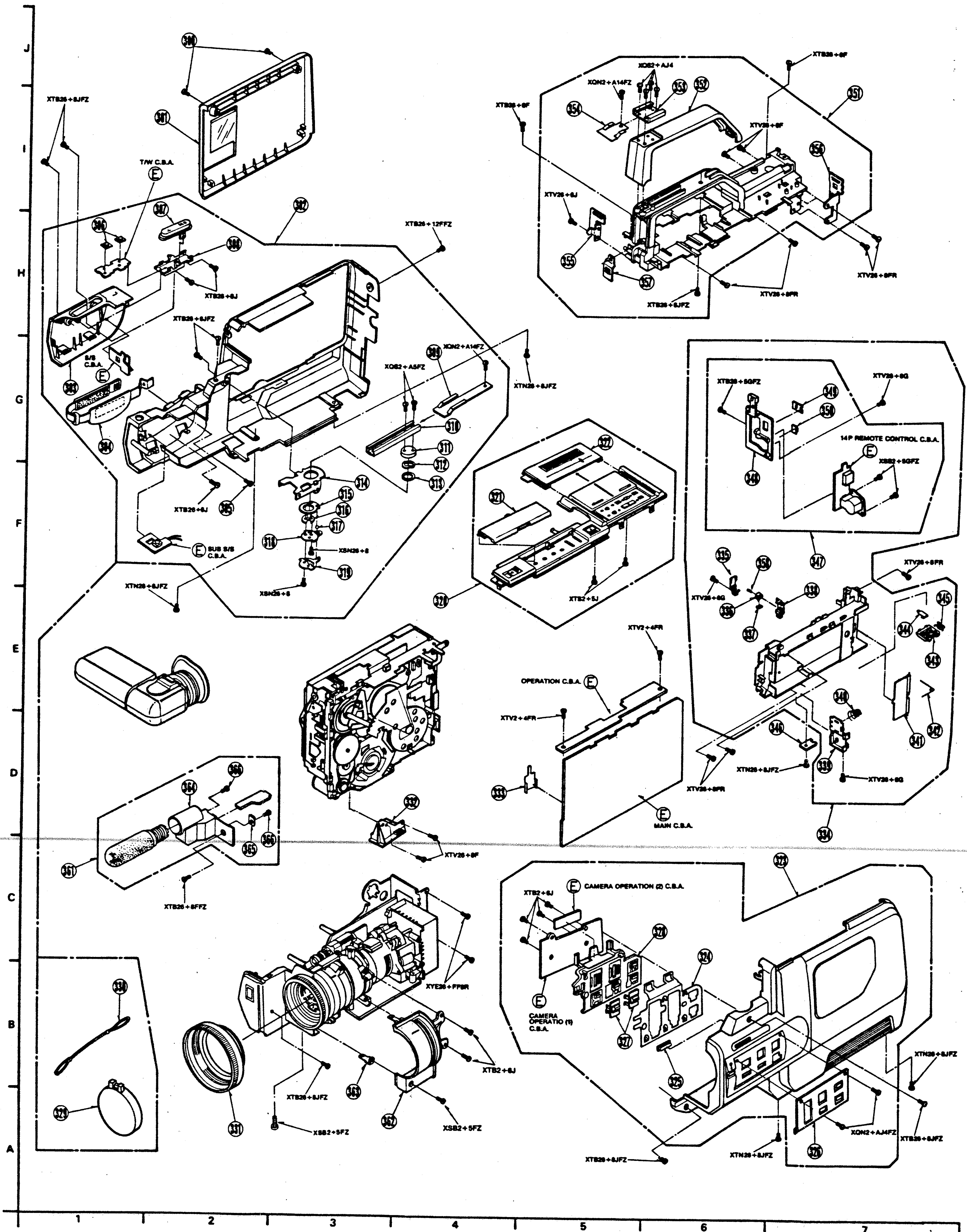
❹ Chassis & Frame Section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XTB26+8JFZ
T/W C.B.A.
S/S C.B.A.
XTB26+8J
XTB26+12FFZ
XTB26+6JFZ
XQN2+A14FZ
XQS2+A5FZ
XTN26+8JFZ
XTB26+6J
SUS S/S C.B.A.
XSN26+8
XTN26+8JFZ
XQS2+AJ4
XQN2+A14FZ
XTB26+8F
XTV26+8F
XTV26+6J
XTB26+8JFZ
XTV26+8FR
XTV26+8FR
XTB26+8GFZ
XTV26+8G
14P REMOTE CONTROL C.B.A.
XSB2+8GFZ
XTS2+5J
XTV2+4FR
OPERATION C.B.A.
XTV2+4FR
MAIN C.B.A.
XTV26+8F
XTV26+8G
XTV26+8FR
XTN26+8JFZ
XTV26+8FR
XTV26+8G
XTB26+8FFZ
XYE26+FF8R
XTB2+6J
XTB26+8JFZ
XSB2+5FZ
XSB2+5FZ
CAMERA OPERATION (2) C.B.A.
XTB2+6J
CAMERA OPERATIO (1) C.B.A.
XTN26+8JFZ
XQN2+AJ4FZ
XTB26+8JFZ
XTN26+8JFZ
XTB26+8JFZ
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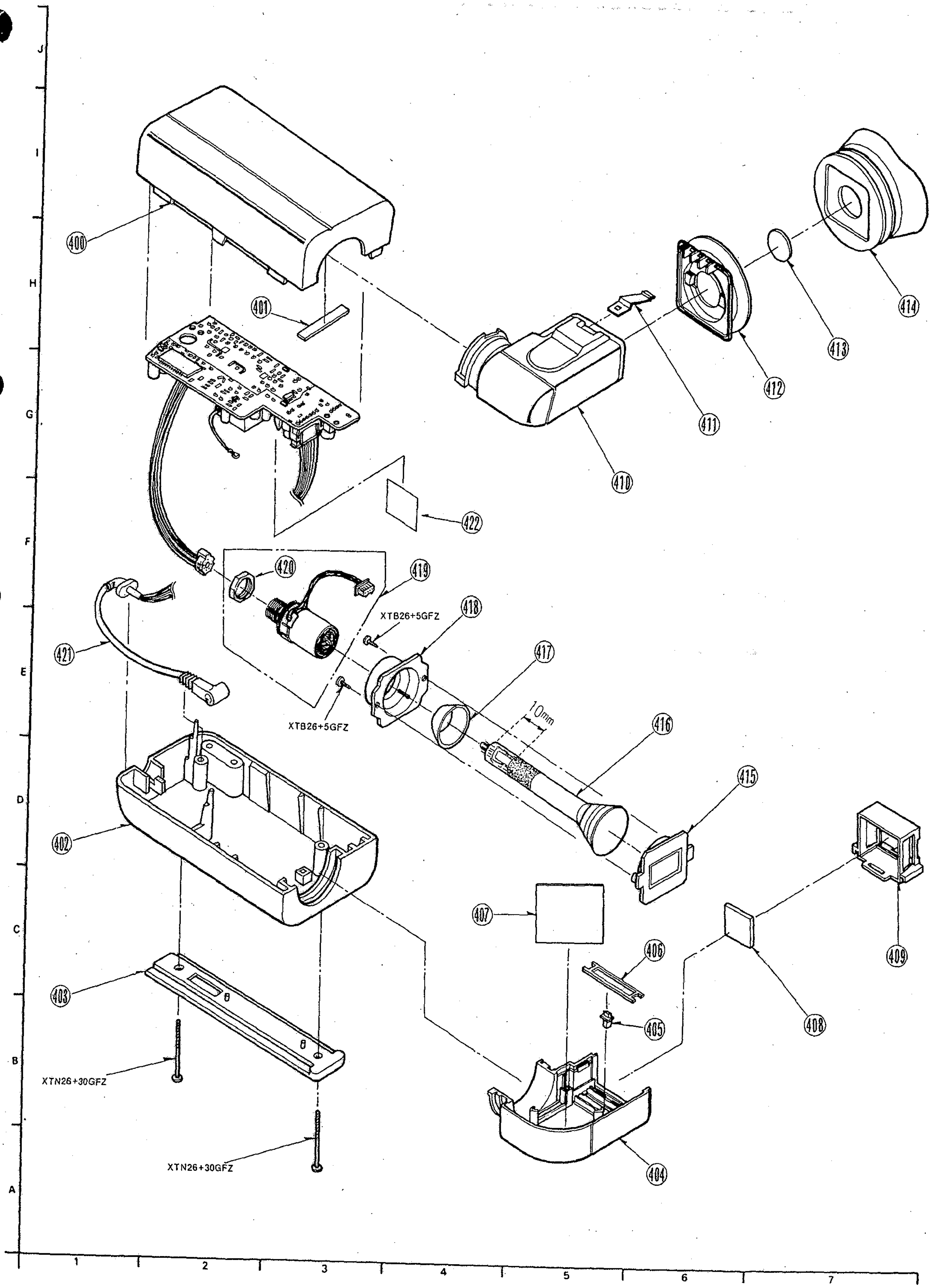
❺ E.V.F. Section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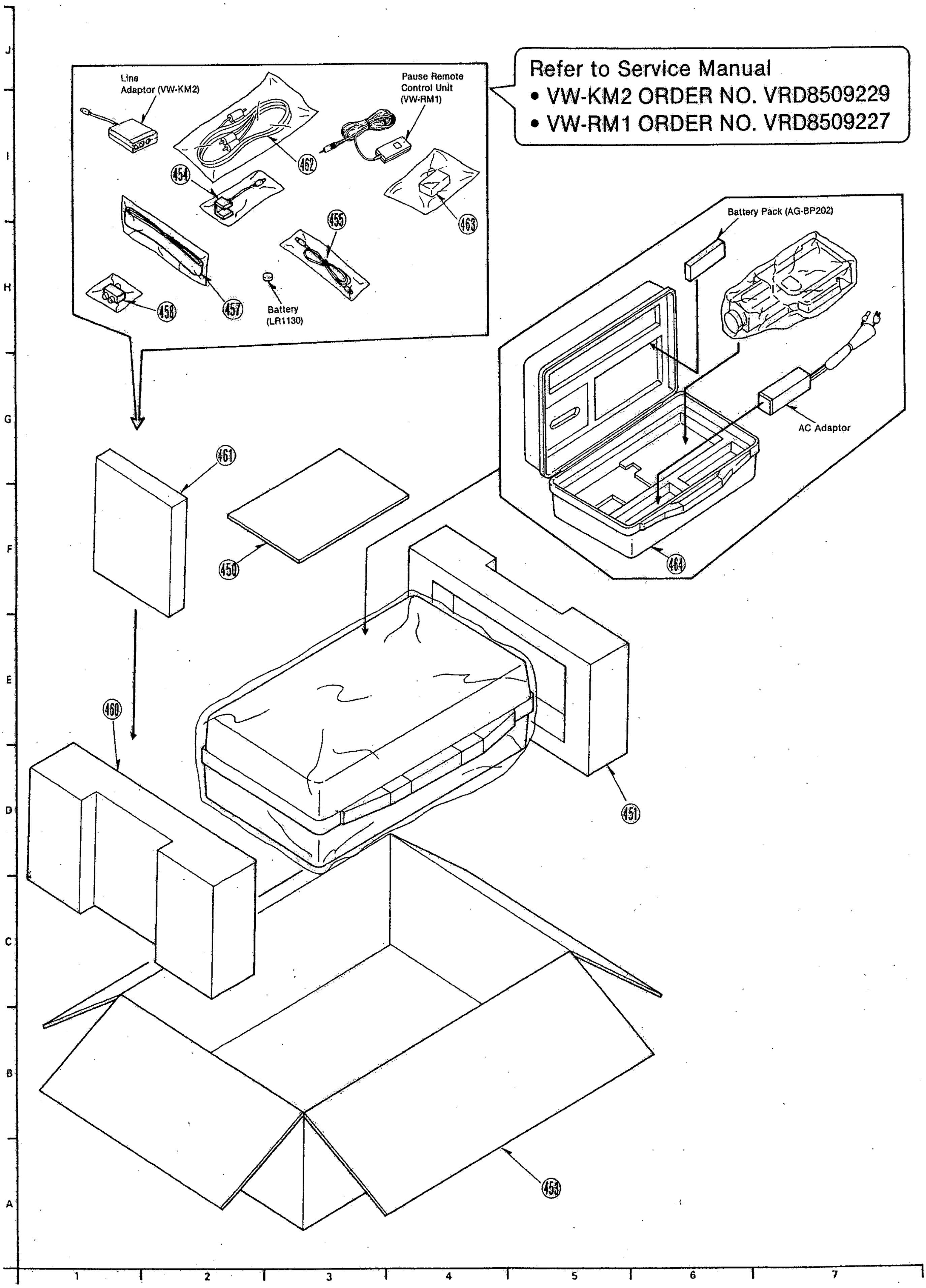
XTB26+5GFZ
XTB26+5GFZ
10mm
XTN26+30GFZ
XTN26+30GFZ

❻ Packing Parts & Accessories Section


Line Adaptor (VW-KM2)
Pause Remote Control Unit (VW-RM1)
(462)
(454)
(463)
(455)
(457)
(458)
Battery (LR1130)
Battery Pack (AG-BP202)
AC Adaptor
(461)
(450)
(464)
(451)
(460)
(453)
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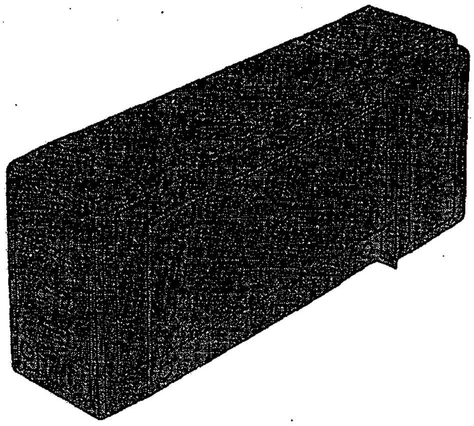
Refer to Service Manual
- VW-KM2 ORDER NO. VRD8509229
- VW-RM1 ORDER NO. VRD8509227

AC Adaptor

AG-B3A



ITEM	SPECIFICATION	ITEM	SPECIFICATION
POWER	SOURCE: 120 V AC 50/60 Hz (Automatic Voltage Adjustment)	AUDIO	OUTPUT: AUDIO OUT CONNECTOR (Phono Type) −8 dB, less than 2 kΩ
	CONSUMPTION: 44 watts	RF OUT SYSTEM	VHF: CH3 or CH4, $66^{+2}_{-2.5}$ dBμ, 75Ω unbalanced
	OUTPUT: DC 12 V, 1.2 A for VHS Movie DC 20 V, 0.1 A for Heater DC 12 V, 1.5 A for battery charge	DIMENSIONS	2-1/2" (63 mm) (W) × 3-3/8" (84 mm) (H) × 8-5/8" (219.5 mm) (D)
VIDEO	OUTPUT: VIDEO OUT CONNECTOR (Phono) 1.0 Vp-p, 75Ω terminated	WEIGHT	1.9 lbs (0.86 kg)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

WARNING: **TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.**

CONTENTS

SPECIFICATIONS .... Cover

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AC ADAPTOR SCHEMATIC DIAGRAM 6

MAIN C.B.A., FRONT PANEL C.B.A. & A-V TERMINAL C.B.A. 9

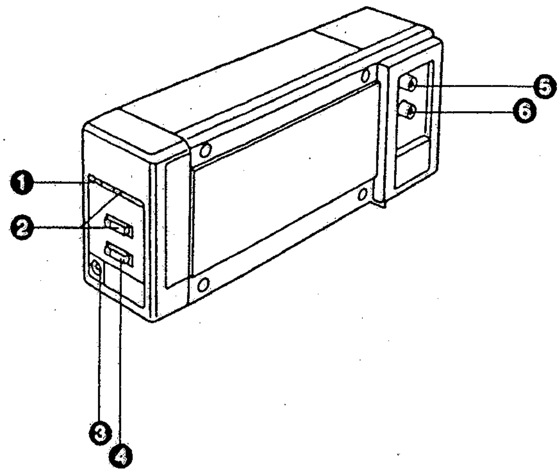
RF CONVERTER SCHEMATIC DIAGRAM 10

EXPLODED VIEW 11

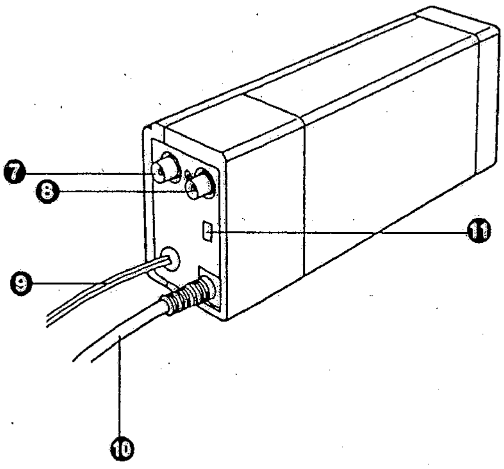
OPERATING INSTRUCTIONS

CONTROLS AND COMPONENTS

FRONT SIDE



REAR SIDE



① Charging Indicator
② Power Switch with Indicator
③ Battery Pack Charging Socket
④ TV/VCR Selector
⑤ Video Output Jack
⑥ Audio Output Jack
⑦ Antenna Connector
⑧ TV Connector
⑨ AC Cord
⑩ Adaptor Cable
⑪ RF Converter Channel Selector

DISASSEMBLY PROCEDURES

DETAILED DISASSEMBLY METHOD

1. Removal of Top Case

Unscrew the 4 screws (A) and remove the Top Case.

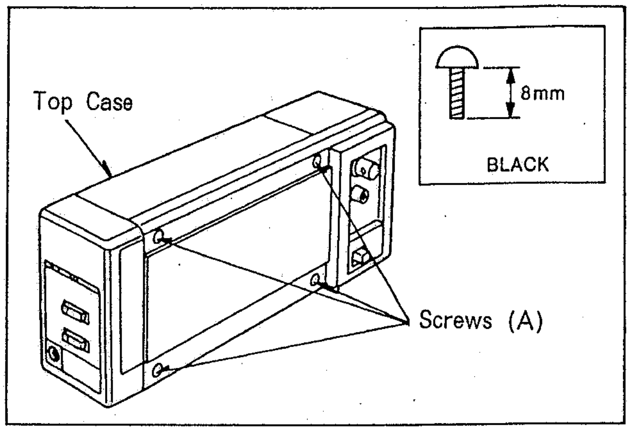

Top Case
8mm
BLACK
Screws (A)

Figure 1

2. Removal of Front Panel

Remove the Front Panel disconnecting the connector P1.

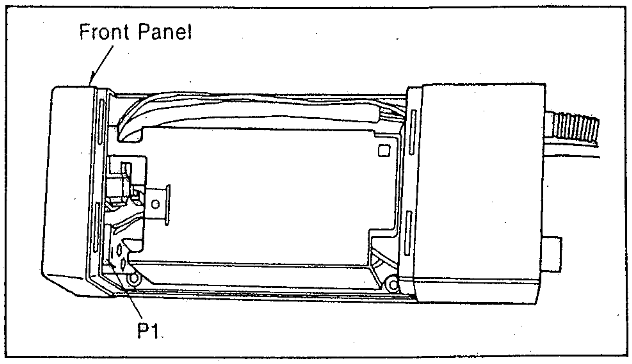

Front Panel
P1

Figure 2

3. Removal of Main Circuit Board

Unscrew the 2 screws (B) and remove the Main Circuit Board.

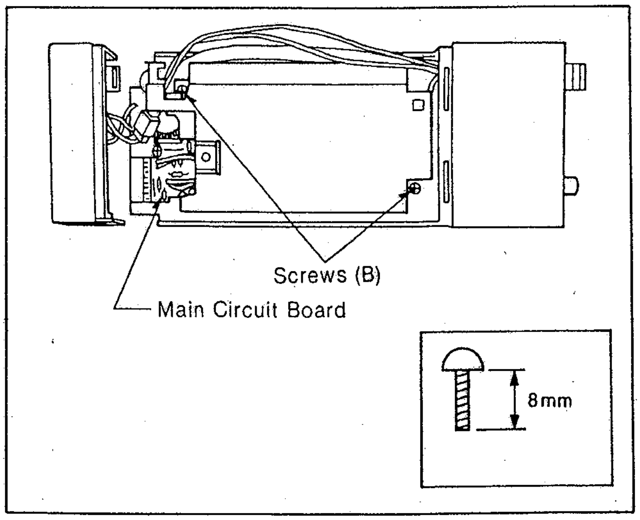

Screws (B)
Main Circuit Board
8mm

Figure 3

4. Removal of Rear Case

Unscrew the 3 screws (C) remove the Rear Case.

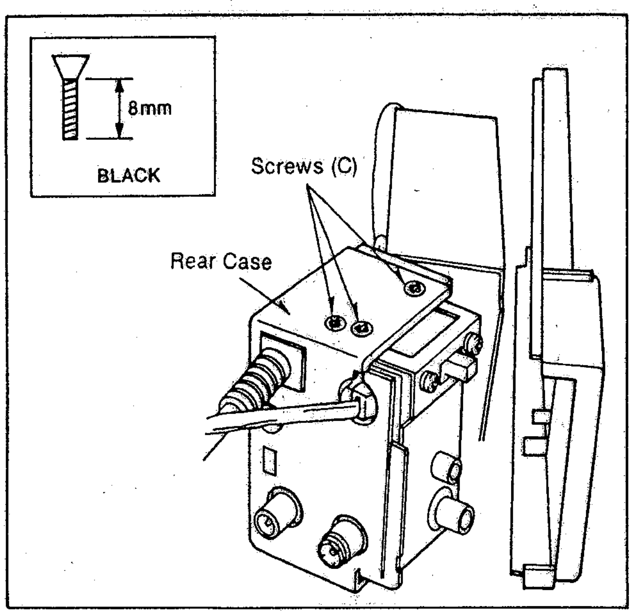

8mm
BLACK
Screws (C)
Rear Case

Figure 4

5. Removal of Main Sield Case

Diconnect the connector P6 and connector (E) and remove the Main Shield Case.

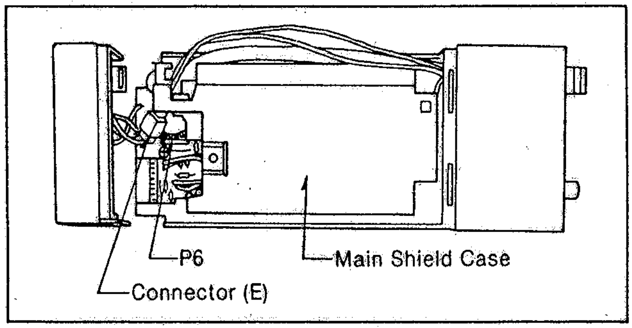

P6
Main Shield Case
Connector (E)

Figure 5

6. Removal of Front Panel Circuit Board

Unscrew the 2 screws (F) and remove the Front Panel Circuit Board.

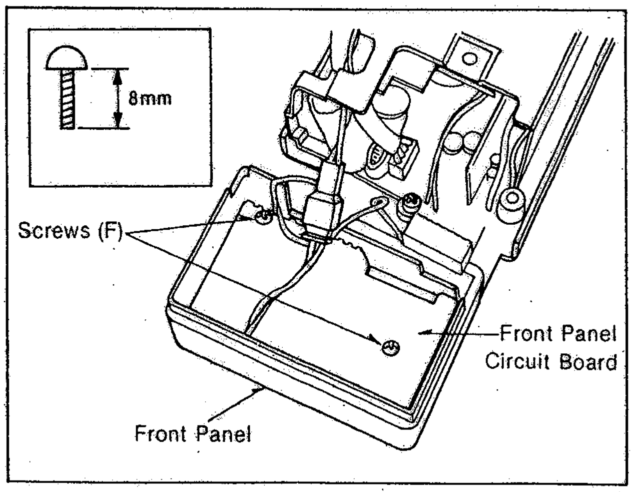

8mm
Screws (F)
Front Panel
Circuit Board
Front Panel

Figure 6

7. Removal of A–V Terminal Circuit Board

Remove shield case and unscrew the 2 screws (G) and remove the A–V Terminal Circuit Board.

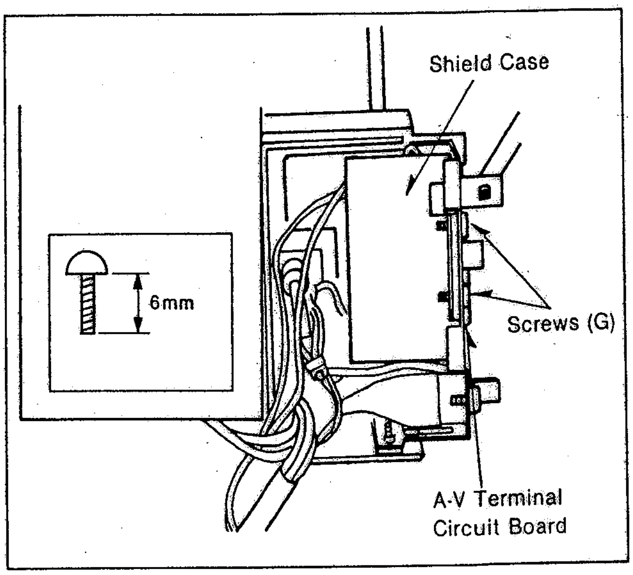

Shield Case
6mm
Screws (G)
A-V Terminal
Circuit Board

Figure 7

ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete electrical adjustment procedures which may be required for electronic circuit of the AC Adaptor.

TEST EQUIPMENTS

To perform the electrical adjustments completely following equipments are required.

1. D.V.M. (Digital Volt Meter)
   Voltage Range :0.001~50V
2. Oscilloscope
   Voltage Range :0.005~50V/div
3. DC Ammeter
   Current Range :0~10A
4. DC Voltmeter
   Voltage Range :0~20V
5. Plastic Tip Driver
6. Resistor (5ohm Variable 200W)
7. DC Power Supply (5A/20V)

ADJUSTMENT PROCEDURES

POWER SUPPLY OUTPUT VOLTAGE ADJUSTMENT

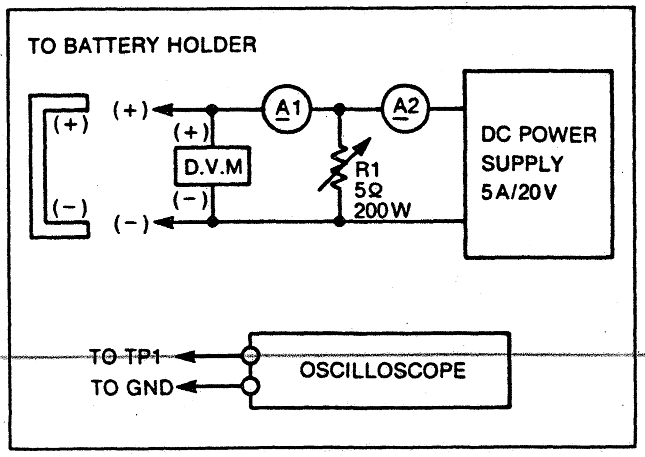
TP	ADJ.	MODE	INPUT
CONNECTOR P6-(1) (+) -(3) (−)	VR101	POWER SUPPLY	
TAPE	M. EQ.	SPEC.	
	D.V.M.	13.0+−0.3V	

1. Connect the VHS MOVIE to AC Adaptor.
2. Turn the unit in REC−PLAY mode.
3. Adjust VR101 so that the output voltage at pin 1 of connector P6 is within specification.

INITIAL CHARGE CURRENT AND SCHMITT VOLTAGE ADJUSTMENT

TP	ADJ.	MODE	INPUT
BATTERY HOLDER-(+) -(−)	VR102 VR103	CHARGE	
TAPE	M. EQ.	SPEC.	
	DC AM/D.V.M	A=1.5+−0.005[A] VR102 From High to Low VR103	

1. Make the connection as shown below.



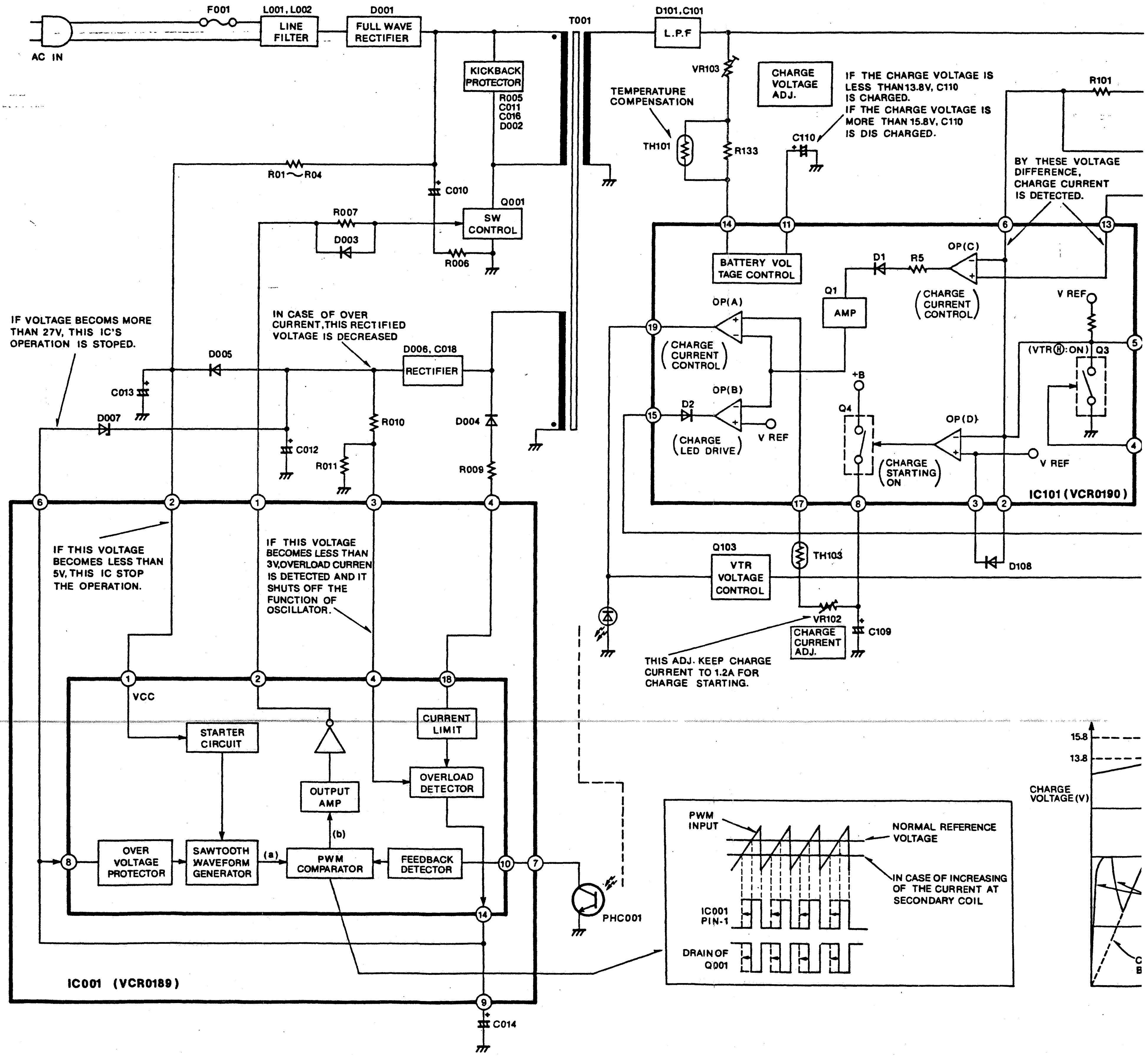
TO BATTERY HOLDER
(+)
(−)
(+)
(−)
D.V.M
(+)
(−)
A1
A2
R1
5Ω
200W
DC POWER SUPPLY
5A/20V
TO TP1
TO GND
OSCILLOSCOPE

Figure 8

2. Adjust the output of the DC power supply so that the indication of the DC voltmeter becomes 14.0V and adjust R1 so that the indication of the DC ammeter (A2) becomes 3.0A.
3. Adjust VR102 so that the indication of the DC ammeter (A1) becomes 1.5+−0.05A.
4. Adjust the output level of the DC power supply to 15.3V.
5. Adjust the VR103 so that voltage at TP101 is changed from high (approx.15V) to low (approx.0.5).

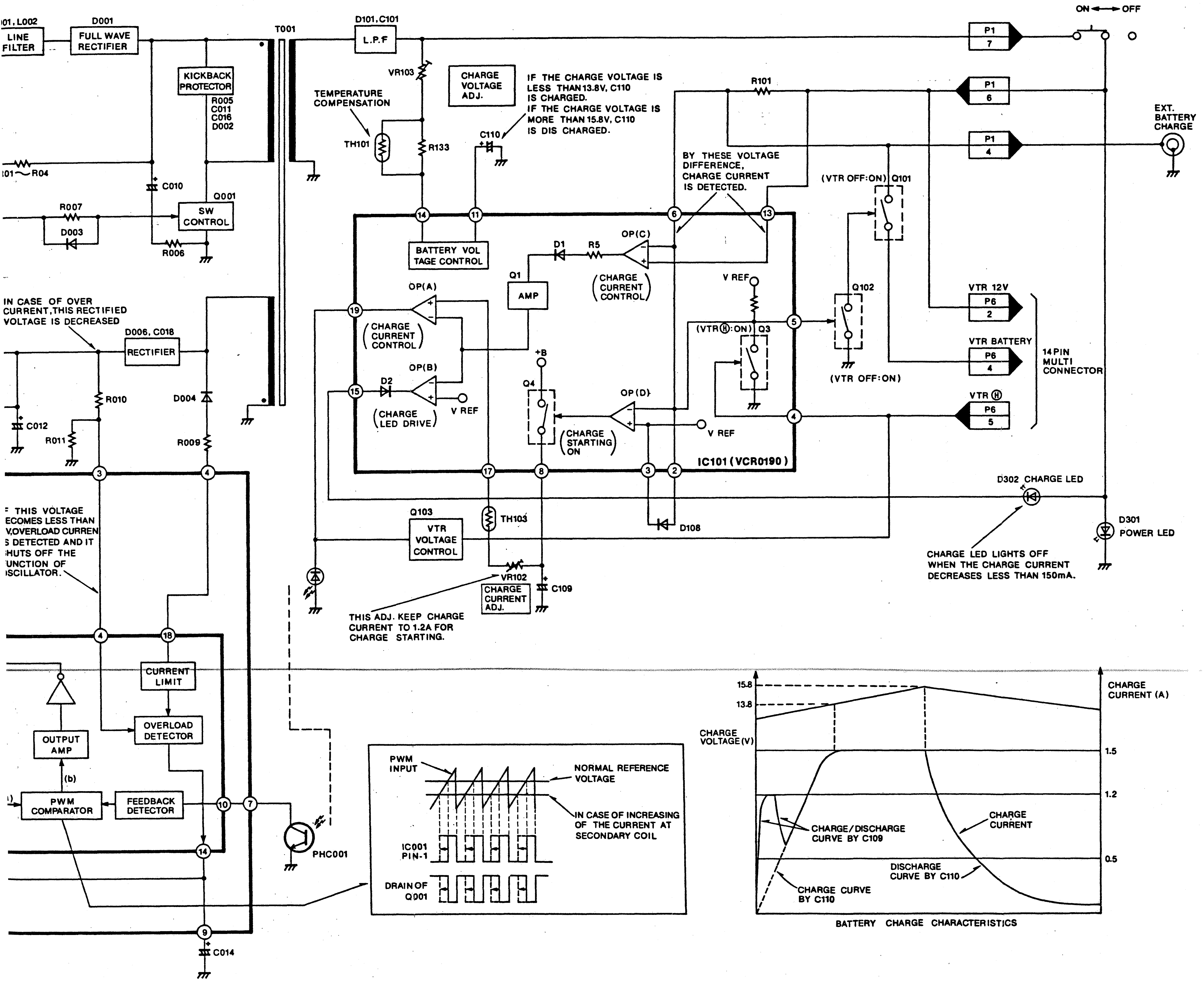
It is also available to use a resistor 5ohm/50W or 2 pieces of 10ohm/20W resistors inparallel use or equevalent, instead of variable resistor, 5o hm/200W to get specified current.

AC ADAPTOR BLOCK DIAGRAM



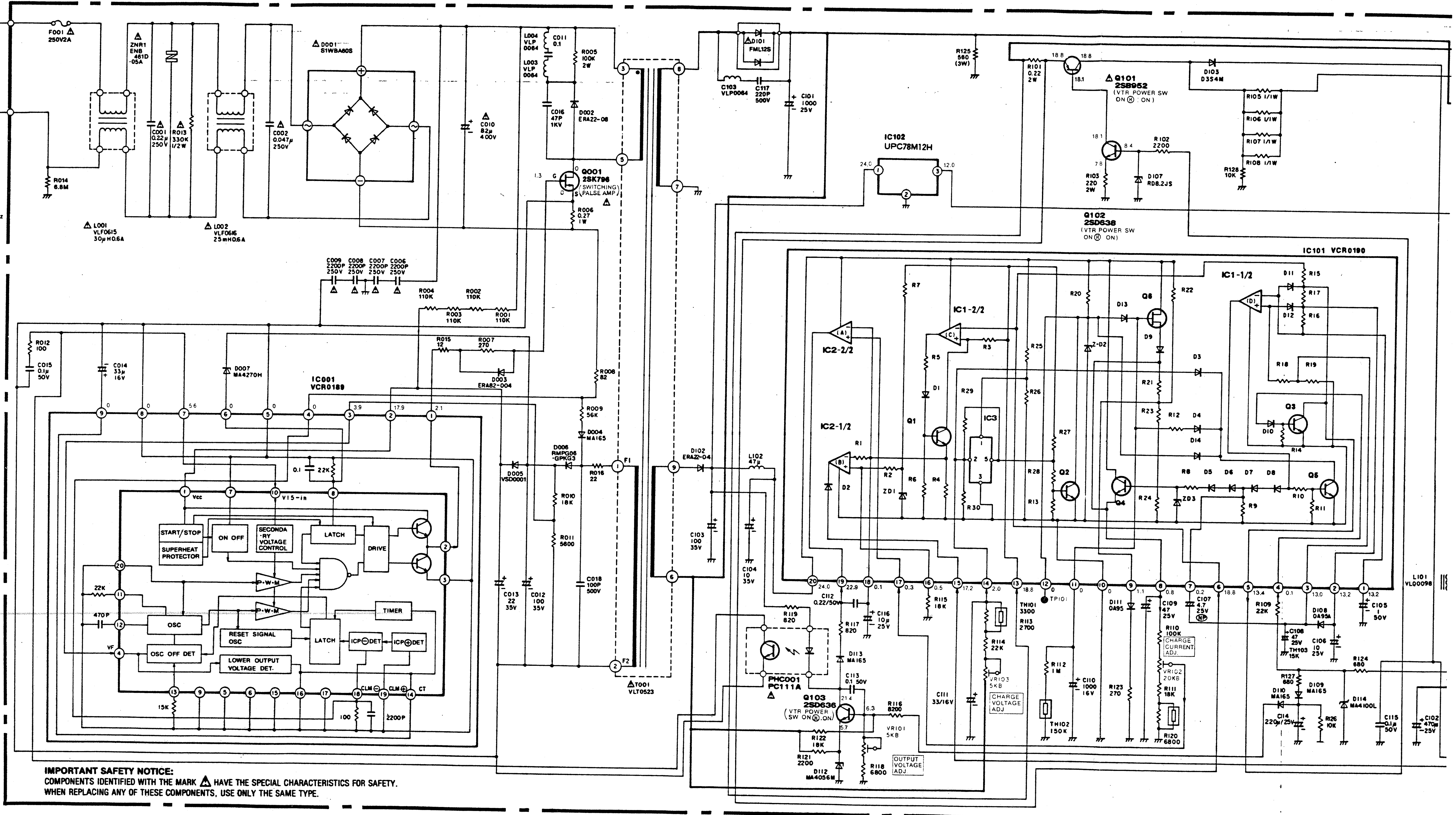
AC IN
F001
L001, L002
LINE FILTER
D001
FULL WAVE RECTIFIER
KICKBACK PROTECTOR
R005
C011
C016
D002
T001
R01~R04
C010
Q001
SW CONTROL
R007
D003
R006
IF VOLTAGE BECOMS MORE THAN 27V, THIS IC'S OPERATION IS STOPED.
IN CASE OF OVER CURRENT,THIS RECTIFIED VOLTAGE IS DECREASED
D005
D006, C018
RECTIFIER
C013
D007
C012
R010
R011
D004
R009
IF THIS VOLTAGE BECOMES LESS THAN 5V, THIS IC STOP THE OPERATION.
IF THIS VOLTAGE BECOMES LESS THAN 3V,OVERLOAD CURREN IS DETECTED AND IT SHUTS OFF THE FUNCTION OF OSCILLATOR.
VCC
STARTER CIRCUIT
OUTPUT AMP
CURRENT LIMIT
OVERLOAD DETECTOR
OVER VOLTAGE PROTECTOR
SAWTOOTH WAVEFORM GENERATOR
(a)
(b)
PWM COMPARATOR
FEEDBACK DETECTOR
IC001 (VCR0189)
C014
PHC001
D101, C101
L.P.F
VR103
TEMPERATURE COMPENSATION
TH101
R133
CHARGE VOLTAGE ADJ.
C110
IF THE CHARGE VOLTAGE IS LESS THAN 13.8V, C110 IS CHARGED.
IF THE CHARGE VOLTAGE IS MORE THAN 15.8V, C110 IS DIS CHARGED.
R101
BY THESE VOLTAGE DIFFERENCE, CHARGE CURRENT IS DETECTED.
BATTERY VOL TAGE CONTROL
OP(A)
(CHARGE CURRENT CONTROL)
OP(B)
D2
(CHARGE LED DRIVE)
V REF
Q1
AMP
D1
R5
OP(C)
(CHARGE CURRENT CONTROL)
V REF
(VTR Ⓗ:ON) Q3
+B
Q4
OP(D)
(CHARGE STARTING ON)
V REF
IC101 (VCR0190)
Q103
VTR VOLTAGE CONTROL
TH103
D108
VR102
CHARGE CURRENT ADJ.
C109
THIS ADJ. KEEP CHARGE CURRENT TO 1.2A FOR CHARGE STARTING.
PWM INPUT
NORMAL REFERENCE VOLTAGE
IN CASE OF INCREASING OF THE CURRENT AT SECONDARY COIL
IC001 PIN-1
DRAIN OF Q001
15.8
13.8
CHARGE VOLTAGE (V)

K DIAGRAM


01, L002
LINE FILTER
D001
FULL WAVE RECTIFIER
T001
KICKBACK PROTECTOR
R005
C011
C016
D002
01~R04
C010
Q001
R007
SW CONTROL
D003
R006
IN CASE OF OVER CURRENT,THIS RECTIFIED VOLTAGE IS DECREASED
D006, C018
RECTIFIER
R010
D004
C012
R011
R009
THIS VOLTAGE
ECOMES LESS THAN
V,OVERLOAD CURREN
S DETECTED AND IT
HUTS OFF THE
UNCTION OF
SCILLATOR.
CURRENT LIMIT
OVERLOAD DETECTOR
OUTPUT AMP
(b)
PWM COMPARATOR
FEEDBACK DETECTOR
C014
PHC001
D101, C101
L.P.F
VR103
TEMPERATURE COMPENSATION
TH101
R133
CHARGE VOLTAGE ADJ.
C110
IF THE CHARGE VOLTAGE IS LESS THAN 13.8V, C110 IS CHARGED.
IF THE CHARGE VOLTAGE IS MORE THAN 15.8V, C110 IS DIS CHARGED.
BATTERY VOL TAGE CONTROL
D1
R5
OP(C)
CHARGE CURRENT CONTROL
Q1
AMP
OP(A)
CHARGE CURRENT CONTROL
OP(B)
D2
CHARGE LED DRIVE
V REF
+B
Q4
OP(D)
CHARGE STARTING ON
V REF
V REF
(VTR Ⓗ:ON) Q3
IC101 (VCR0190)
R101
BY THESE VOLTAGE DIFFERENCE, CHARGE CURRENT IS DETECTED.
(VTR OFF:ON) Q101
Q102
(VTR OFF:ON)
Q103
VTR VOLTAGE CONTROL
TH103
D108
VR102
CHARGE CURRENT ADJ.
C109
THIS ADJ. KEEP CHARGE CURRENT TO 1.2A FOR CHARGE STARTING.
ON ◄—► OFF
P1 7
P1 6
P1 4
EXT. BATTERY CHARGE
VTR 12V
P6 2
VTR BATTERY
P6 4
VTR Ⓗ
P6 5
14PIN MULTI CONNECTOR
D302 CHARGE LED
D301 POWER LED
CHARGE LED LIGHTS OFF WHEN THE CHARGE CURRENT DECREASES LESS THAN 150mA.
PWM INPUT
NORMAL REFERENCE VOLTAGE
IN CASE OF INCREASING OF THE CURRENT AT SECONDARY COIL
IC001 PIN-1
DRAIN OF Q001
15.8
13.8
CHARGE VOLTAGE (V)
CHARGE CURRENT (A)
1.5
1.2
0.5
CHARGE/DISCHARGE CURVE BY C109
CHARGE CURRENT
DISCHARGE CURVE BY C110
CHARGE CURVE BY C110

BATTERY CHARGE CHARACTERISTICS

AC ADAPTOR SCHEMATIC DIAGRAM


F
E
D
C
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A
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11
F001 250V2A
ZNR1 ENB 461D -05A
D001 S1WBA60S
AC IN
AC 120V/50,60Hz
VJA0367 (FOR U.S.A.)
VJA0368 (FOR CANADIAN)
R014 6.8M
L001 VLF0615 30µH0.6A
L002 VLF0616 25mH0.6A
C001 0.22µ 250V
R013 330K 1/2W
C002 0.047µ 250V
C010 82µ 400V
L004 VLP 0064
L003 VLP 0064
C011 0.1
R005 100K 2W
C016 47P 1KV
D002 ERA22-08
Q001 2SK796 (SWITCHING PALSE AMP)
R006 0.27 1W
C009 2200P 250V
C008 2200P 250V
C007 2200P 250V
C006 2200P 250V
R004 110K
R002 110K
R003 110K
R001 110K
R015 12
R007 270
D003 ERA82-004
R008 82
R009 56K
D004 MA165
D006 RMPG06-GPKG3
R016 22
R010 18K
R011 5600
C018 100P 500V
D005 VSD0001
C013 22 35V
C012 100 35V
R012 100
C015 0.1µ 50V
C014 33µ 16V
D007 MA4270H
IC001 VCR0189
START/STOP
SUPERHEAT PROTECTOR
ON OFF
SECONDARY VOLTAGE CONTROL
LATCH
DRIVE
P-W-M
TIMER
OSC
RESET SIGNAL OSC
ICP⊖DET
ICP⊕DET
OSC OFF DET
LOWER OUTPUT VOLTAGE DET.
Vcc
V15-in
CLM⊖
CLM⊕
CT
VF
22K
470P
15K
100
2200P
0.1
T001 VLT0523
F1
F2
D102 ERA22-04
L102 47µ
C103 100 35V
C104 10 35V
D101 FML12S
C103 VLP0064
C117 220P 500V
C101 1000 25V
R125 560 (3W)
IC102 UPC78M12H
24.0
12.0
R101 0.22 2W
Q101 2SB952 (VTR POWER SW ON Ⓡ : ON)
D103 D354M
R105 1/1W
R106 1/1W
R107 1/1W
R108 1/1W
R128 10K
R102 2200
R103 220 2W
D107 RD8.2JS
Q102 2SD638 (VTR POWER SW ON Ⓡ ON)
IC101 VCR0190
IC1-1/2
IC1-2/2
IC2-1/2
IC2-2/2
IC3
C112 0.22/50V
R119 820
R117 820
C116 10µ 25V
D113 MA165
C113 0.1 50V
PHC001 PC111A
Q103 2SD636 (VTR POWER SW ON Ⓡ ON)
R116 8200
VR101 5KB
R122 18K
R121 2200
D112 MA4056M
R118 6800
OUTPUT VOLTAGE ADJ
R115 18K
C111 33/16V
R114 22K
VR103 5KB
CHARGE VOLTAGE ADJ
TH101 3300
R113 2700
TP101
R112 1M
TH102 150K
C110 1000 16V
R123 270
D111 OA95
C109 47 25V
R110 100K
CHARGE CURRENT ADJ.
VR102 20KB
R111 18K
R120 6800
C107 4.7 25V NP
R109 22K
D108 OA95A
C108 47 25V
TH103 15K
C106 10 25V
R124 680
R127 680
D110 MA165
D109 MA165
C114 220µ/25V
R126 10K
D114 MA4100L
C105 1 50V
C115 0.1µ 50V
C102 470µ 25V
L101 VLQ0098

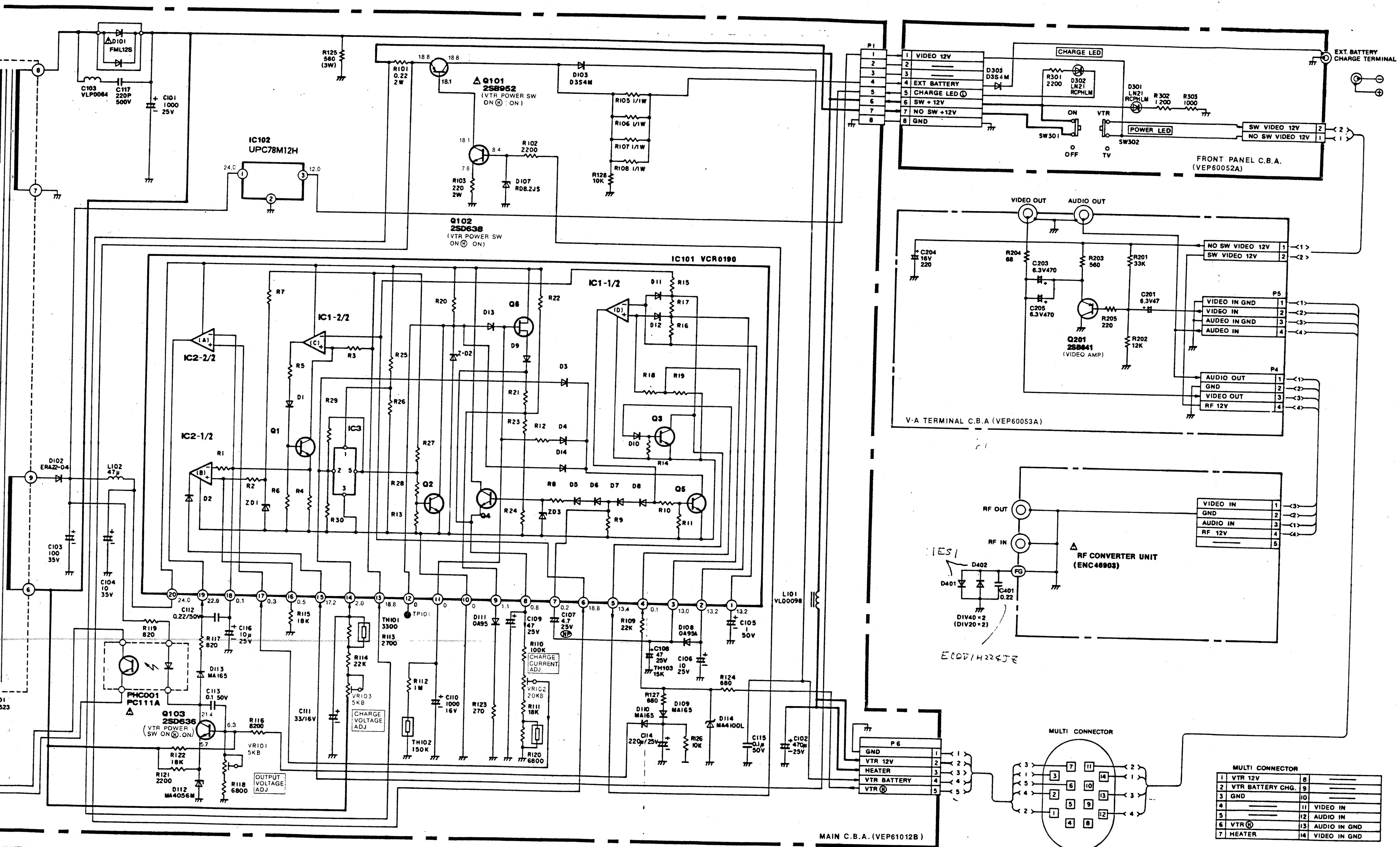
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

NOTE 1: WHEN MEASURE THE VOLTAGE OF AC ADAPTOR, CONNECT THE PROBE (EARTH SIDE) OF MEASURING EQUIPMENT AS FOLLOWS.
PRIMARY SIDE .... MAIN C.B.A. C010 ⊖
SECONDARY SIDE ...... AC ADAPTOR CHASSIS EARTH

NOTE 2: THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS MEASURED WHEN INPUT AC 120V IS APPLIED.

NOTE 3: THE MEASUREMENT MODE OF DC VOLTAGE ON THIS DIAGRAM IN NOLOAD.


D101 FML12S
C103 VLP0084
C117 220P 500V
C101 1000 25V
R125 560 (3W)
R101 0.22 2W
Q101 2SB952 (VTR POWER SW ON Ⓗ : ON)
D103 D3S4M
R105 1/1W
R106 1/1W
R107 1/1W
R108 1/1W
R128 10K
IC102 UPC78M12H
R102 2200
R103 220 2W
D107 RD8.2JS
Q102 2SD638 (VTR POWER SW ON Ⓗ : ON)
IC101 VCR0190
IC1-1/2
IC1-2/2
IC2-2/2
IC2-1/2
IC3
D102 ERA22-04
L102 47μ
C103 100 35V
C104 10 35V
C112 0.22/50V
C116 10μ 25V
R115 18K
TH101 3300
R113 2700
TP101
D111 OA95
C109 47 25V
C107 4.7 25V NP
R109 22K
D108 OA95A
C105 1 50V
L101 VLQ0098
R119 820
R117 820
D113 MA165
PHC001 PC111A
C113 0.1 50V
Q103 2SD636 (VTR POWER SW ON Ⓗ : ON)
R116 8200
VR101 5KB
OUTPUT VOLTAGE ADJ
R122 18K
R121 2200
D112 MA4056M
R118 6800
C111 33/16V
R114 22K
VR103 5KB
CHARGE VOLTAGE ADJ
R112 1M
C110 1000 16V
R123 270
TH102 150K
R110 100K
CHARGE CURRENT ADJ
VR102 20KB
R111 18K
R120 6800
C108 47 25V
TH103 15K
C106 10 25V
R124 680
R127 680
D110 MA165
D109 MA165
D114 MA4100L
C114 220μ/25V
R126 10K
C115 0.1μ 50V
C102 470μ 25V
MAIN C.B.A. (VEP61012B)
P1
P6
GND
VTR 12V
HEATER
VTR BATTERY
VTR Ⓗ
VIDEO 12V
EXT BATTERY
CHARGE LED Ⓛ
SW +12V
NO SW +12V
D303 D3S4M
CHARGE LED
R301 2200
D302 LN21 RCPHLM
D301 LN21 RCPHLM
R302 1200
R303 1000
SW301
SW302
ON
OFF
VTR
TV
POWER LED
SW VIDEO 12V
NO SW VIDEO 12V
EXT. BATTERY CHARGE TERMINAL
FRONT PANEL C.B.A. (VEP60052A)
VIDEO OUT
AUDIO OUT
C204 16V 220
R204 68
C203 6.3V470
C205 6.3V470
R203 560
R201 33K
C201 6.3V47
R205 220
R202 12K
Q201 2SB641 (VIDEO AMP)
P5
VIDEO IN GND
VIDEO IN
AUDEO IN GND
AUDEO IN
P4
AUDIO OUT
RF 12V
V-A TERMINAL C.B.A (VEP60053A)
RF OUT
RF IN
FG
D402
D401
C401 0.22
DIV40×2 (DIV20×2)
RF CONVERTER UNIT (ENC46903)
AUDIO IN
MULTI CONNECTOR

MULTI CONNECTOR

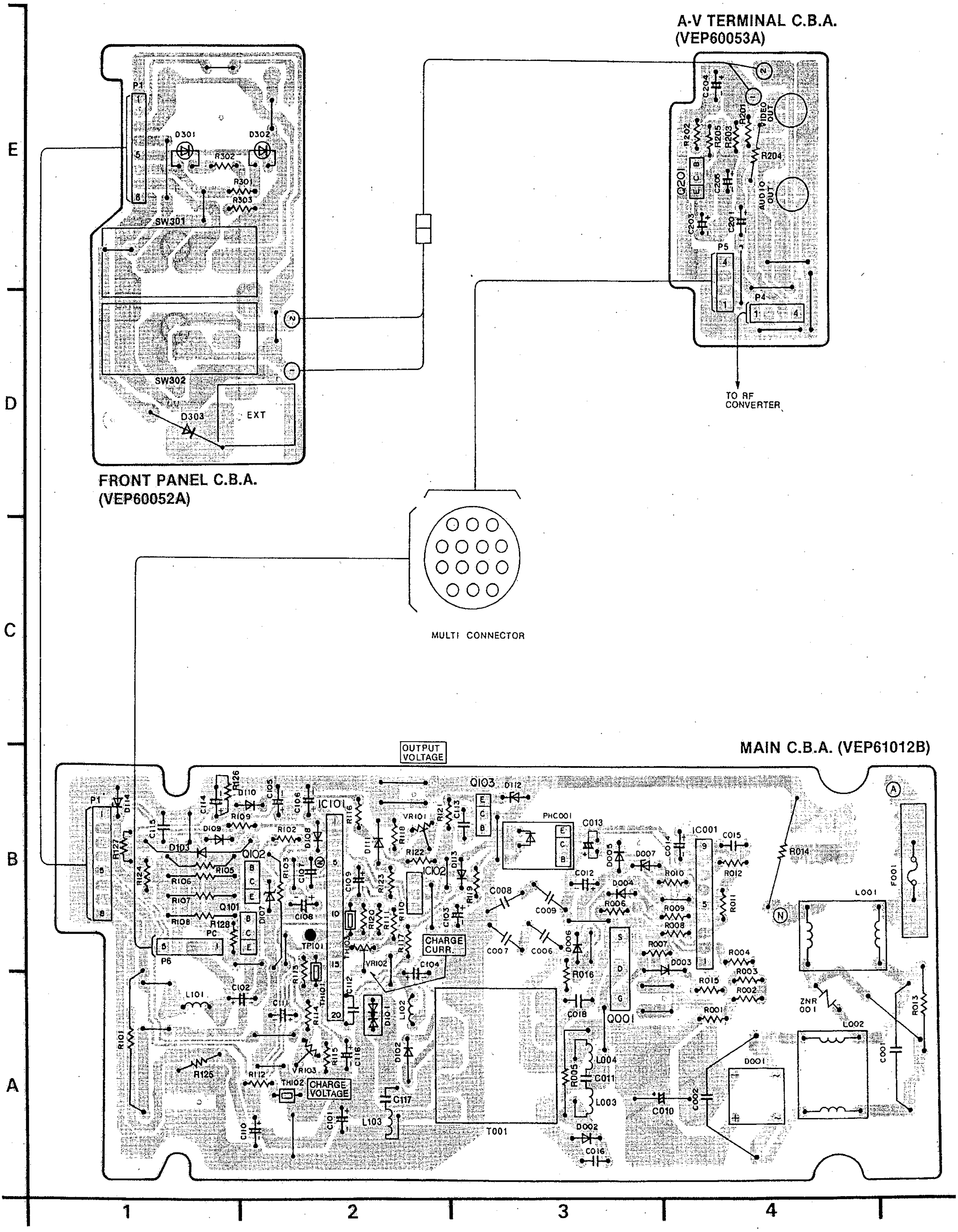
1	VTR 12V	8	————
2	VTR BATTERY CHG.	9	————
3	GND	10	————
4	————	11	VIDEO IN
5	————	12	AUDIO IN
6	VTR Ⓗ	13	AUDIO IN GND
7	HEATER	14	VIDEO IN GND

WHEN MEASURE THE VOLTAGE OF AC ADAPTOR, CONNECT THE PROBE (EARTH SIDE) OF MEASURING EQUIPMENT AS FOLLOWS.
PRIMARY SIDE .... MAIN C.B.A. C010 ⊖
SECONDARY SIDE ...... AC ADAPTOR CHASSIS EARTH

NOTE 2: THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS MEASURED WHEN INPUT AC 120V IS APPLIED.
NOTE 3: THE MEASUREMENT MODE OF DC VOLTAGE ON THIS DIAGRAM IN NOLOAD.

6 7 8 9 10 11 12 13 14 15

MAIN C.B.A. (VEP61012B), FRONT PANEL C.B.A. (VEP60052A) & A-V TERMINAL C.B.A. (VEP60053A)


A-V TERMINAL C.B.A.
(VEP60053A)
FRONT PANEL C.B.A.
(VEP60052A)
MAIN C.B.A. (VEP61012B)
MULTI CONNECTOR
TO RF CONVERTER
OUTPUT VOLTAGE
CHARGE CURR.
CHARGE VOLTAGE
VIDEO OUT
AUDIO OUT
EXT
P1
D301
D302
R302
R301
R303
SW301
SW302
D303
C204
R202
R205
R203
R201
R204
Q201
C206
C203
C201
P5
P4
Q103
D112
IC101
PHC001
C013
IC001
C015
R014
F001
L001
Q102
Q101
IC102
TP101
VR101
VR102
VR103
TH101
TH102
L101
L102
L103
T001
Q001
D001
L002
ZNR 001
R013
C001
C002
C010
L003
L004
C011
C016
D002
R005
C018
R016
D003
R001
R002
R003
R004
R015
R007
R008
R009
R010
R011
R012
R006
D004
D005
D006
D007
C007
C008
C009
C012
C014
D101
D102
D103
D107
D108
D109
D110
D111
D113
D114
C101
C102
C103
C104
C105
C106
C107
C108
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C110
C111
C112
C113
C114
C115
C116
C117
R101
R102
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R105
R106
R107
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R110
R111
R112
R113
R114
R115
R116
R117
R118
R119
R120
R121
R122
R123
R124
R125
R126
R127
R128
PC
P6
E
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A
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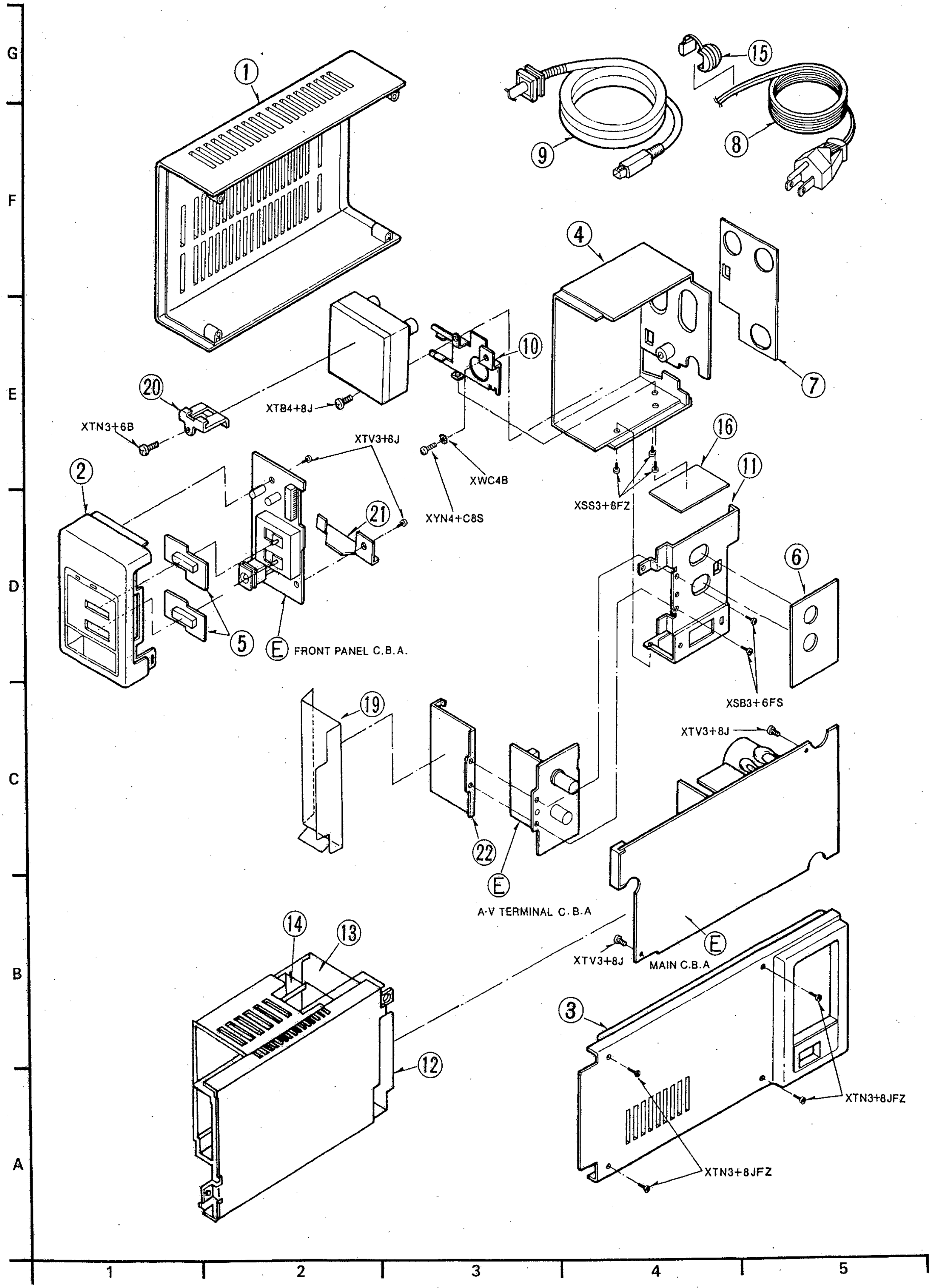
4

EXPLODED VIEWS ❶ *Chassis & Frame Section*


G
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①
⑮
⑨
⑧
④
⑦
⑩
⑳
XTB4+8J
XTN3+6B
XTV3+8J
②
XWC4B
XYN4+C8S
XSS3+8FZ
⑯
⑪
㉑
⑥
⑤
Ⓔ FRONT PANEL C.B.A.
XSB3+6FS
⑲
XTV3+8J
㉒
Ⓔ
A·V TERMINAL C.B.A
⑭
⑬
XTV3+8J
MAIN C.B.A
Ⓔ
③
⑫
XTN3+8JFZ
XTN3+8JFZ

ORDER NO. VRD8711M213
D9
(Date of issue: DEC. 1987)

VHS Movie

Panasonic VHS
Professional/Industrial Video

AG-170

Replacement Parts List

Notes:

1. ●Be sure to make your orders of replacement parts according to this list.
   ●"<R>" in Remark column indicates recommended parts.
   ●"<M>" in Remark column indicates needed in the periodical maintenance.
2. IMPORTANT SAFETY NOTICE
   Components identified by "!" have special characteristics important for safety.
   When replacing any of these components, use only the original ones.
   Meaning of symbol <!> on this parts list is exactly the same as symbol ⚠ on Schematic and Circuit Board Diagrams.
3. Unless otherwise specified;
   All resistors are in OHMS (Ω), K=1,000Ω, M=1,000kΩ.
4. ITEM NUMBERS WITH CAPITAL LETTER E
   Item numbers with capital letter E (Example: E1,E2,...) in Ref. No. column mean that the parts are listed with the E item numbers in the exploded views.
5. The main assombled parts are shown below C.B.A. marked with "■".
6. When ordering parts, use part No. only from Part No. column.
7. Printed circuit board assembly with mark (NLA) is no longer available after discontinuation of the product.

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   SUB PROCESS C.B.A. ········ 6
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1. SERVICING FIXTURES & TOOLS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VFM8080HMFPH	VHS Alignment Tape	1	
		VFK0329	Post Adj. Screwdriver	1	
		VFK0328	H-Position Adj. Fixture	1	
		VFK0343	Check Light	1	
		VFK0132	Back Tension Meter	1	
			(Tentelometer,		(T2-H7-UM)
			Made in U.S.A.)		
		VFK0191	Post Adj. Plate	1	
		VFK0133	Dial Torque Gauge	1	
		VFK0180	Plastic Clamper	1	
		VFK0134	Adaptor for VFK0133	1	
		VFK0190	Reel Table Height Gauge	1	
		VFK0157	Fine Adjustment Screwdriver	1	
			(2.5mm Phi)		
		VFKS0060	2 Pin Connecion Cable	1	
		VFK0380	18P Extension Cable	1	
		VFK0430	14P Extension Cable	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VFK0335	Retaining Ring Remover	1	
			(3mm/4mm)		
		VFK0326	Hex.Wrench Set	1	
		MOR265	Morlytone Grease	1	
		VFK27	Head Cleaning Stick	1	
		VFK66	Fan typpe Tension Gauge	1	
		VFKS003A	Logarithmic Gray Scale	1	
			Chart		
		VFKS003B	Color Chip Chart	1	
		YWV2100RB03	Ball Chart & J Chart	1	
		VFK0382	Camera Holder	1	
		VFK0431	Camera Holder Arm	1	
		VFK0432	Holder Spacer	2	
		VKF0374	Color Temperature	1	
			Convesion Filter (C12)		
		VKF0375	Color Temperature	1	
			Convesion Filter (C2)		

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT VFK0580 J-CHART & BALL CHART
PARTS which are listed with their part numbers in this parts list section.

2. MECHANICAL REPLACEMENT PARTS LIST

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1(1)	VMP1105	AWT SENSOR HOOK	1	
2(1)	VEK3435	AWT SENSOR	1	<R>
3(1)	VWJ0291	AWT FLEXIBLE CABLE	1	
4(1)	VMP1339	AWT SENSOR ANGLE	1	[illegible]
5(1)	VYK2016	AWT SENSOR CASE UNIT	1	
6(1)	VXW0004	LENS UNIT	1	<R>.
7(1)	VEP30038A	ENCODER C.B.A.	1	<R>
8(1)	VJF0517	ENCODER HOLDER (A)	1	
9(1)	VJF0518	ENCODER HOLDER (B)	1	
10(1)	VEM0286	ZOOM MOTOR	1	<!><R>
11(1)	VXW0020	LENS ASSEMBLE	1	
12(1)	VEM0285	AUTO FOCUS MOTOR	1	<!><R>
13(1)	VXL1635	IRIS UNIT	1	
14(1)	VMX1347	ACTUATER FRAME SEAM	1	
15(1)	VXQ0017	ACTUATER UNIT	1	
16(1)	VDL0143	CRYSTAL FILTER	1	
17(1)	VMX1276	CCD CUSHION	1	
18(1)	VEK3396	CCD UNIT	1	<R>
19(1)	MN3735F	CCD	1	<R>
20(1)	VMA7183	CCD PLATE	1	
21(1)	VWJ0288	CCD FLEXIBLE CABLE	1	<R>
22(1)	VMD1136	SENSOR FLAME	1	
23(1)	VMD1137	SENSOR C.B.A. FLAME	1	
24(1)	VXA3121	SENSOR SHIELD CASE UNIT	1	
25(1)	VMP1447	CAMERA ANGLE	1	
26(1)	VGQ1371	CAMERA ANGLE BOSS	1	
27(1)	VHD0398	SENSOR SETTING SCREW	2	
100(2)	VMD0954	CASSETTE GUIDE (L)	1	
101(2)	VDG0426—	MAIN ARM GEAR (A)	1	[illegible]
102(2)	VMD0953	CASSETTE GUIDE (R)	1	
103(2)	VXA3022	CASSETTE HOLDER UNIT	1	
104(2)	VMD1130	DAMPER UNIT	1	
107(2)	VXA3024	STAND (R) UNIT	1	
108(2)	VEK3414	PHOTO HOLDER (R) UNIT	1	
109(2)	VMB1329	HOLDER SPRING (L)	1	
110(2)	VMB1621	HOLDER SPRING (R)	1	
111(2)	VEK3415	PHOTO HOLDER (L) UNIT	1	
112(2)	VSH0026	LEAF SW	1	<R>
113(2)	VMD0952	LEAF SW COVER (0)	1	
114(2)	VMB1330	LOCK BOARD SPRING	1	
115(2)	VXA3023	STAND (L) UNIT	1	
116(2)	VMB1453	LOCK LEVER (B) SPRING	1	
117(2)	VML1650	LOCK LEVER (B)	1	
118(2)	VDP1096	LOCK ROLLER (O)	1	
119(2)	VXL1648	LOCK BOARD UNIT	1	
120(2)	VMB1331	LOCK LEVER (A) SPRING	1	
121(2)	VML1649	LOCK LEVER (A)	1	
122(2)	VXA3119	CASSETTE UP (O) UNIT	1	
123(2)	VXR0128	SUPPLY REEL TABLE	1	<R><M>
124(2)	VXP0900	SUPPLY CLUTCH UNIT	1	
125(2)	VXP0901	TAKE-UP CLUTCH UNIT	1	<R>
126(2)	VXR0171	TAKE-UP REEL TABLE	1	<R><M>
128(2)	VSQ0493	DEW SENSOR UNIT	1	<R>
129(2)	VGQ0888	CASSETTE OPENER	1	
135(2)	VXZ0246	SOFT BRAKE (T) UNIT	1	<R>
136(2)	VXP0899	DRIVE GEAR ARM UNIT	1	
137(2)	VHD0288	CYLINDER UNIT SCREW	2	
138(2)	VEH0374	UPPER CYLINDER UNIT	1	<R><M>
139(2)	VJR0347	RT TERMINAL	1	
140(2)	VEG0582	CYLINDER UNIT	1	<!><R><M>
141(2)	VDV0167	LOADING BELT	1	<R><M>
142(2)	VDG0370	INTERMEDIATE PULLEY GEAR	1	
143(2)	VMX0653	CUT WASHER	1	
144(2)	VDG0372	DRIVE GEAR (B)	1	
145(2)	VXS0076	EARTH HOLDER UNIT	1	<R>
147(2)	VDG0371	DRIVE GEAR (A)	1	
148(2)	VDG0202	CAM GEAR	1	<R>
149(2)	VMX0388	THRUST WASHER	3	
150(2)	VXL1654	MAIN ROD (K) UNIT	1	
151(2)	VDG0211	LOADING GEAR (C)(2)	1	
152(2)	VMB1324	LOADING GEAR (C) SPRING	1	
153(2)	VDG0210	LOADING GEAR (C)(1)	1	
154(2)	VMA7228	GUARD PLATE	1	
155(2)	VML1707	DRIVE ARMKICK LEVER	1	
156(2)	VMB1388	DRIVE ARMKICK LEVER SPRING	1	
157(2)	VXL1706	SECTOR GEAR UNIT	1	
158(2)	VMA6560	SAFETY TAB SW BASE	1	
159(2)	VSH0023	SAFETY TAB SW	1	<R>
160(2)	VDG0207	DRIVE GEAR (C)	1	
161(2)	VSS0193	MODE SELECT SW	1	<R><M>
162(2)	VMX1280	SENSOR SPACER	1	
163(2)	VEK3398	STATOR UNIT	1	<!><R>
164(2)	VXP0634	ROTOR UNIT	1	<!><R><M>
165(2)	VXP0897	MAIN PULLEY UNIT	1	
166(2)	VDV0155	CAPSTAN BELT	1	<R><M>
167(2)	VMD0935	BELT COVER	1	
200(3)	VHD0282	P2 ADJUST PLATE SCREW	1	
201(3)	VMA6542	P2 ADJUST PLATE	1	
202(3)	VMD0701	SUPPLY POST STOPPER	1	
203(3)	VMD1166	V STOPPER BASE	1	
204(3)	VXP0841	SUPPLY ROLLER POST UNIT	1	
205(3)	VGQ0842	P2 CAP	1	
206(3)	VMD0769	TAPE PROTECTOR	1	
207(3)	VXA3158	SUPPLY SHAFT HOLDER(1)UNIT	1	[illegible]
208(3)	VXA3159	SUPPLY SHAFT HOLDER ANGLE UNIT	1	[illegible]
209(3)	VMM0144	CONNECTION ROD	1	
210(3)	VMX1282	RING GUIDE SLEEVE UNIT	3	
211(3)	VXA2231	CONNECTION TIE UNIT	1	
212(3)	VMB1319	LOADING SPRING	1	
213(3)	VXA2253	LOADING RING (S)(1) UNIT	1	
214(3)	VDP1160	RING GUIDE ROLLER	3	
215(3)	VMB1319	LOADING SPRING	1	
216(3)	VXA2223	LOADING RING (T)(1) UNIT	1	
217(3)	VMC0250	PRESSER SPRING	1	
218(3)	VMX1279	RING GUIDE SLEEVE	3	
219(3)	VMD1155	LOADING GUIDE (S)(1)	1	
220(3)	VMD1128	LOADING GUIDE (S)(2)	1	
221(3)	VMX1088	SUPPLY UPPER LIMITER	1	
222(3)	VMS2888	P1 POST SLEEVE (B)	1	
223(3)	VMX0876	P1 COLLAR	1	
224(3)	VDP1033	P1 ROLLER	1	
225(3)	VMA6547	P1 LIMITER PLATE	1	
227(3)	VXA3112	P1 BASE (1) UNIT	1	
228(3)	VXD0098	THRUST SPACER	1	
229(3)	VHD0204	THRUST SCREW NUT	1	
230(3)	VHD0368	ROLLER POST SCREW	2	
231(3)	VMX0775	DUST SEAL	2	
232(3)	VXD0108	CAPSTAN HOUSING UNIT	1	
233(3)	VXP0927	TAKE-UP ROLLER POST UNIT	1	
234(3)	VMA6546	TAKE-UP SHAFT HOLDER ANGLE	1	
235(3)	VXA3116	TAKE-UP SHAFT HOLDER (A) UNIT	1	
236(3)	VMD1165	TAKE-UP LOADING BASE	1	
237(3)	VMC0352	SHAFT HOLDER PRESSURE SPRING	1	
238(3)	VMA7226	SHAFT HOLDER PLATE ANGLE	1	
239(3)	VHD0403	V STOPPER SCREW	1	
240(3)	VHD0367	TAKE-UP SHAFT ADJ.SCREW	1	
242(3)	VEM0288	LOADING MOTOR UNIT	1	<!><R><M>
243(3)	VJF0444	CLAMPER	1	
245(3)	VMB1747	TENSION SPRING	1	
246(3)	VXL1262	TENSION ARM UNIT	1	
247(3)	VXZ0245	TENSION BAND UNIT	1	<R><M>
248(3)	VML2065	BAND RELEASE ARM	1	
249(3)	VML1631	TENSION KICK LEVER	1	
250(3)	VML2064	EJECT LEVER (A)	1	
251(3)	VXA3020	SUPPORTER UNIT	1	
252(3)	VMB1405	BRAKE SPRING	1	
253(3)	VXZ0207	BRAKE (R) UNIT	1	<R><M>
254(3)	VXZ0206	BRAKE (L) UNIT	1	<R><M>
255(3)	VXA2392	BRAKE PLATE (1) UNIT	1	
256(3)	VML2073	EJECT LEVER (B)	1	
257(3)	VED0047	A/C HEAD UNIT	1	<R><M>
258(3)	VHD0275	A/C HEAD ADJUST SCREW	1	
259(3)	VMB1321	A/C HEAD ADJUST SPRING	1	
260(3)	VHD0381	A/C HEAD TILT ADJUST SCREW	1	
261(3)	VXL1696	A/C HEAD ARM UNIT	1	
262(3)	VJF0300	A/C HEAD BINDER	1	
263(3)	VHN0077	A/C HEAD ARM NUT	1	

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
264(3)		VMB1320	A/C HEAD SPRING	1	
265(3)		VDG0208	LOADING GEAR (A)	1	
266(3)		VDG0461	LOADING GEAR (B)	1	
267(3)		VHN0072	ADJUST NUT	1	
268(3)		VHN0047	M2 NYLON NUT	2	
269(3)		VMS2693	P4 POST SLEEVE	1	
270(3)		VXJ0057	P5 POST SLEEVE	1	
271(3)		VMB1322	P4,P5 SPRING	2	
272(3)		VML2067	PINCH LEVER	1	
273(3)		VMB1748	PINCH LEVER SPRING	1	
274(3)		VXL1652	PINCH ROLLER ARM(1)UNIT	1	<R><M>
275(3)		VXL1650	PINCH ARM UNIT	1	
276(3)		VMB1326	PINCH ARM SPRING	1	
277(3)		VXL1264	SOFT BRAKE LEVER (S) UNIT	1	
278(3)		VMB1314	SOFT BRAKE SPRING (S)	1	
279(3)		VMB1771	REW ARM SPRING	1	
280(3)		VXL1649	FF/REW ARM UNIT	1	
282(3)		VBS0021	FE HEAD	1	<R><M>
283(3)		VMD1129	FE HEAD BASE	1	
284(3)		VMB1447	SUPPORTER SPRING	1	
300(4)		VHD0371	CASSETTE COVER SCREW	2	
301(4)		VYP2205	CASSETTE COVER UNIT	1	<R>
302(4)		VYK2010	SIDE CASE (L) UNIT	1	<R>
303(4)		VKM1358	GRIP CASE	1	
304(4)		VYC0215	GRIP BELT UNIT	1	<R> [illegible]
305(4)		VHD0386	GRIP BELT SCREW	1	
306(4)		VMG0358	SWITCH RUBBER PIECE	2	
307(4)		VGU4001	ZOOM BUTTON	1	
308(4)		VGQ1366	ZOOM BUTTON PIECE	1	
309(4)		VMC0257	EVF SHOE SPRING	1	
310(4)		VMP1073	EVF SHOE	1	
311(4)		VMP1072	EVF ROTATION STAND	1	
312(4)		WW-12	WAVING WASHER	1	
313(4)		VMX1123	EVF ROTATION SPACER	1	
314(4)		VMP1341	EVF ANGLE	1	
315(4)		VGQ1213	EVF ROTATION PIECE (A)	1	
316(4)		VGQ1214	EVF ROTATION PIECE (B)	1	
317(4)		VDB0876	EVF CLICK BALL	1	
318(4)		VMC0277	EVF CLICK SPRING (A)	1	
319(4)		VMC0278	EVF CLICK SPRING (B)	1	
320(4)		VXU0821	OPERATION PANEL UNIT	1	<R>
321(4)		VKF0982	RESET LID	1	
322(4)		VKF1036	CURSOR	1	
323(4)		VYK2006	SIDE CASE (R) UNIT	1	<R>
324(4)		VMC0351	CAMERA OPERATION SWITCH	1	
		-VG?	SPRING		
325(4)		VGU4008	BACKLIGHT KNOB	1	
326(4)		~~VYK1884~~	~~CASE (A)~~ UNIT IndICATion Panel	1	VGP1884
327(4)		VGU4002	SLIDE KNOB	2	
328(4)		VGP1756	CAMERA OPERATION PANEL	1	
329(4)		VKF0981	HOOD CAP	1	<R>
330(4)		VGQ1350	HOOD STRAP	1	
331(4)		VDW0084	LENS HOOD	1	<R>
332(4)		VYQ0096	TRIPOD FIXING BRACKET UNIT	1	
333(4)		VSC2179	SHIELD CASE (LID)	1	
334(4)		VYK2011	BATTERY CASE UNIT	1	
335(4)		VMC0238	BATTERY STOPPER FIXING	1	
			ANGLE		
336(4)		VGQ1122	BATTERY STOPPER	1	
337(4)		VGQ1181	BATTERY STOPPER PIECE	1	
338(4)		VGU3906	BATTERY EJECT BUTTON	1	
339(4)		VGQ1129	BATTERY CATCHER	1	
340(4)		VMB1614	BATTERY STOPPER SPRING	1	
341(4)		VKF0831	BATTERY DOOR	1	
342(4)		VMC0237	BATTERY DOOR SPRING	1	
343(4)		VJF0539	BATTERY FIXING PIECE	1	
344(4)		VJR0326	ELECTRODE (+)	1	
345(4)		VMC0363	ELECTRODE (-)	1	
346(4)		VKF0960	BATTERY LID	1	
347(4)		VEJ0659	JACK PLATE UNIT	1	
348(4)		VKM1092	JACK PLATE CASE	1	
349(4)		VGH1523	JACK NAME PLATE	1	
350(4)		VGU3902	EDIT KNOB	1	
351(4)		VXK0860	TOP FRAME UNIT	1	<R>
352(4)		VKM1161	HANDLE TOP CASE	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
353(4)		VMP1079	SHOE	1	
354(4)		VMC0241	SHOE SPRING	1	
355(4)		VMP1446	SHOULDER BELT ANGE(FRONT)	1	
356(4)		VMP1503	SHOULDER BELT ANGLE(REAR)	1	
357(4)		VMP1462	MIC MOUNT ANGLE	1	
358(4)		VMB1610	BATTERY EJECT SPRING	1	
361(4)		VEK3643	MIC UNIT	1	<R>
362(4)		VKM1160	LENS COVER	1	<R>
363(4)		VMP1395	LENS COVER ANGLE	1	
364(4)		VGQ1517	MICROPHONE HOUSING	1	
365(4)		VMP1696	CLAMPER	1	
366(4)		VHD0417	SCREW	2	
400(5)		VKM1372	EVF TOP COVER	1	<R>
401(5)		VMC0317	EVF ROTATION SPRING	1	
402(5)		VKM1378	EVF BOTTOM COVER	1	<R>
403(5)		VGQ1363	EVF FOOD	1	
404(5)		VKM1376	CRT BOTTOM CASE	1	<R>
405(5)		VGU3895	EYESIGHT CORRECTION KNOB	1	
406(5)		VJF0502	KNOB PRESSURE SHEET	1	
407(5)		VDL0147	MIRROR	1	<R>
408(5)		VDL0139	EYESIGHT CORRECTION LENS	1	<R>
409(5)		VKF0947	LENS HOLDER	1	
410(5)		VKM1375	CRT TOP CASE	1	<R>
411(5)		VMC0316	EYE CAP HOLDER SPRING	1	
412(5)		VKF0978	EYE CAP HOLDER	1	<R>
413(5)		VDL0140	EYE CAP LENS	1	<R>
414(5)		VMG0407	EYE CAP	1	<R>
415(5)		VJF0526	CRT MASKING	1	
416(5)		M01JVV47WB	CRT	1	<!><R>
417(5)		VMX1004	CRT PROTECTOR RUBBER	1	
418(5)		VJF0527	CRT HOLDER	1	
419(5)		ELY07V552A	DEFLECTION YOKE	1	<!><R>
420(5)		VHN0093	HOLDER RING	1	
421(5)		VEK3387	EVF CABLE UNIT	1	<R>
422(5)		VMZ1187	BARRIER	1	
450(6)		VQT2547	OPERATING INSTRUCTIONS	1	(ENGLISH) <!><R>
450(6)		VQT2548	OPERATING INSTRUCTIONS	1	(FRENCH) <!><R>
451(6)		VPN2080	CUSHION (R)	1	
453(6)		VPG3859	PACKING CASE	1	FOR U.S.A. MODEL <R
453(6)		VPG3860	PACKING CASE	1	FOR CANADIAN MODEL
					<R
454(6)		VJA0180	BATTERY CATHER	1	
455(6)		VJA0322	VHF CABLE	1	
457(6)		VFC0130	SHOULDER STRAP	1	
458(6)		VSQ0495	AV OUTPUT ADAPTOR	1	
460(6)		VPN2079	CUSHION (L)	1	
461(6)		VPK0813	ACCESSORY CASE	1	
462(6)		VFA0039	AV CODE	1	
463(6)		VFA0045	ANTENNA PLUG	1	
464(6)		VFC0191	SYSTEM CARRYING CASE	1	<R>

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

3. ELECTRICAL REPLACEMENT PARTS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			CAMERA SECTION		
		VEP23063E	PROCESS C.B.A.	1	<R><NLA>
		VEP23068C	SUB PROCESS C.B.A.	1	<R><NLA>
		VEP28015D	AF C.B.A.	1	<R><NLA>
		VEP22073B	SENSOR C.B.A.	1	<R><NLA>
		VEP22074A	C.D.S. PACK C.B.A.	1	<R><NLA>
		VEP23061F	ENCODER PACK C.B.A.	1	<R><NLA>
			E.V.F. SECTION		
		VEP27033C	E.V.F. C.B.A.	1	<!><R><NLA>
			VTR SECTION		
		VEP03480C	MAIN C.B.A.	1	<R><NLA>
			(POWER,SERVO,LUMINANCE/		
			CHROMINANCE,AUDIO,ROTARY		
			ERASE,SYSTEM CONTROL)		
		VEP00K79A	CAMERA OPERATION (I) C.B.A.	1	<R><NLA>
		VEK3661	CAMERA OPERATION (II) C.B.A	1	<R><NLA>
		VEP06452A	OPERATION C.B.A.	1	<R><NLA>
		VEK3413	14P REMOTE CONTROL C.B.A.	1	<R><NLA>
		VEK3622	ZOOM SW C.B.A.	1	<R><NLA>
		VEK3623	START STOP SW C.B.A.	1	<R><NLA>
		VEK3624	SUB START STOP SW C.B.A.	1	<R><NLA>
		VEK3521	E.V.F. CONNECTOR UNIT	1	<R>
		VEP00H73B	FE HEAD C.B.A.	1	<R><NLA>
		VEK3415	SUPPLY PHOTO TR. C.B.A.	1	<R><NLA>
		VEK3414	TAKEUP PHOTO TR. C.B.A.	1	<R><NLA>
		VES0413	MECHANISM CONNECTION C.B.A.	1	<R><NLA>
	■	VEP23063E	PROCESS C.B.A.		
B301		VJS2227	CONNECTOR	1	
B302		VJS1948	CONNECTOR	1	
BP3001		VJP1259	CONNECTOR (MALE)	1	
			CAPACITORS		
C101-103		ECEA0JKS470	E.CAPACITOR 6.3V 47U	3	
C104-106		ECUX1E473ZFN	CHIP 25V 0.047U	3	
C107,108		ECUM1C224ZFN	CHIP 16V 0.22U	2	
C109		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C110		ECEA0JKS330I	E.CAPACITOR 6.3V 33U	1	
C111		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C112		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C113,114		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C115-117		ECUM1H821KBV	CHIP 50V 820P	3	
C118-120		ECEA1AKK100	E.CAPACITOR 10V 10U	3	
C124		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C301		ECUX1E104ZFN	CHIP 25V 0.1U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C302		ECUM1H270JCV	CHIP 25V 27P	1	
C303		ECSF1VE474	T.CAPACITOR 35V 0.47U	1	
C304		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C305		ECEA1ESN4R7	E.CAPACITOR 25V 4.7U	1	
C306		ECEA1AKK100	E.CAPACITOR 10V 10U	1	
C307		ECEA1VSN2R2	E.CAPACITOR 35V 2.2U	1	
C308		ECUM1H102KBV	CHIP 25V 1000P	1	
C309		ECSF1CE106	TANTALUM 16V 10U	1	
C310,311		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C312		ECUM1H561JCV	CHIP 50V 560P	1	
C313		ECUM1E224ZFN	CHIP 25V 0.22U	1	
C314		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C315		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C316		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C319,320		ECUX1E473ZFN	CHIP 25V 0.047U	2	
C321,322		ECUM1H103ZFV	CHIP 25V 0.01U	2	
C323,324		ECUX1E473ZFN	CHIP 25V 0.047U	2	
C325		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C326		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C327		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C328		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C329		ECSF1AE226	T.CAPACITOR 10V 22U	1	
C330		ECSF0JE476	TANTALUM 6.3V 47U	1	
C331		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C336-338		ECUX1E104ZFN	CHIP 25V 0.1U	3	
C340		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C341		ECEA1EKS100I	E.CAPACITOR 25V 10U	1	
C342		ECSF1AE476	TANTALUM 10V 47U	1	
C344		ECSF1AE106	TANTALUM 10V 10U	1	
C345		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C346		ECUM1H331KBV	CHIP 25V 330P	1	
C347		ECEA1EU101	E.CAPACITOR 25V 100U	1	
C351		ECSF1AE106	TANTALUM 10V 10U	1	
C352		ECUM1H105JCV	CHIP 25V 1U	1	
C353		ECSF1AE106	TANTALUM 10V 10U	1	
C354		ECSF1CE106	TANTALUM 16V 10U	1	
C355,356		ECST1AY225Z	T.CAPACITOR 10V 2.2U	2	
C357-359		ECUX1E104ZFN	CHIP 25V 0.1U	3	
C360		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C361		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C362		ECUM1H101JCV	CHIP 25V 100P	1	
C363		ECUM1H151JCV	CHIP 50V 150P	1	
C376,377		ECSF1AE685	T.CAPACITOR 10V 6.8U	2	
C378		ECUM1H101JCV	CHIP 25V 100P	1	
C379		ECUM1H151JCV	CHIP 50V 150P	1	
C381		ECUM1H101JCV	CHIP 25V 100P	1	
C384		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C388		ECCF1H330JC	C.CAPACITOR 50V 33P	1	
C388		ECUM1H330JCV	CHIP 25V 33P	1	
D101		MA713	DIODE	1	<R>
D104		MA728	DIODE	1	<R>
D105		MA713	DIODE	1	<R>
D301		MA141WA	DIODE	1	<R>
D302		MA3047M	DIODE	1	<R>
D303		MA728	DIODE	1	<R>
D304		MA141K	DIODE	1	<R>
D305		MA141WK	DIODE	1	<R>
D306		MA141K	DIODE	1	<R>
D308		MA110	DIODE	1	<R>
FL301		ELB5B004	FILTER	1	
FL303,304		ELB4A002	FILTER	2	
FL305		VLF0610	FILTER	1	
FL306		ELB4E004	FILTER	1	
FL307		ELB4A003	FILTER	1	
FL309		ELB4B003	FILTER	1	
FL310		ELB4B001	FILTER	1	

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
FP101		VJS2282	CONNECTOR	1	
FP301		VJS2137	CONNECTOR	1	
IC101,102		AN1324NS	IC	2	<R>
IC103,104		AN1358S	IC	2	<R>
IC301-303		AN1358S	IC	3	<R>
IC304		AN2153S	IC	1	<R>
IC305		MN4052BS	IC	1	<R>
IC307		UPD9313GB	IC	1	<R>
IC308		VCR0198	IC	1	<R>
IC309		MC8180A	IC	1	<R>
IC310		VCR0197	IC	1	<R>
L301,302		VLQ0163K150	COIL 15UH	2	
L303,304		ELJFA150K	COIL 15UH	2	
L306		VLQ0163K330	COIL 33UH	1	
L308		ELJFA150K	COIL 15UH	1	
L311-313		ELJFA150K	COIL 15UH	3	
L315		VLQ0291	COIL	1	
P501		VJS1235T	CONNECTOR (FEMALE)	1	
Q301-303		2SD1819	TRANSISTOR	3	<R>
Q304-306		2SB1218	TRANSISTOR	3	<R>
Q307		2SD1819	TRANSISTOR	1	<R>
Q308		2SB1218	TRANSISTOR	1	<R>
Q311		2SD1819	TRANSISTOR	1	<R>
Q314,315		2SD1819	TRANSISTOR	2	<R>
Q316		2SC3931	TRANSISTOR	1	<R>
Q318		2SB1218	TRANSISTOR	1	<R>
Q319		2SB1219	TRANSISTOR	1	<R>
Q320,321		2SD1819	TRANSISTOR	2	<R>
Q322		2SB1219	TRANSISTOR	1	<R>
Q323		2SD874	TRANSISTOR	1	<R>
Q324,325		2SD1819	TRANSISTOR	2	<R>
Q327		2SD1819	TRANSISTOR	1	<R>
Q328		2SC3931	TRANSISTOR	1	<R>
Q330		2SD1819	TRANSISTOR	1	<R>
Q331		2SB970	TRANSISTOR	1	<R>
Q332		2SD1819	TRANSISTOR	1	<R>
Q339		2SD1819	TRANSISTOR	1	<R>
Q340		2SK316	TRANSISTOR	1	<R>
Q353		2SC3931	TRANSISTOR	1	<R>
			COMBINATION PART		
QR302		UN5215	TRANSISTOR-RESISTOR	1	
			RESISTORS		
R101,102		ERJ3GEYJ561	CHIP 1/20W 560	2	
R103		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R104		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R105		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R106		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R107		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R109		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R110-113		ERJ3GEYJ333	CHIP 1/20W 33K	4	
R114		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R116		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R117		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R118		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R119		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R120		ERJ3GEYJ470	CHIP 1/20W 47	1	
R121		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R122		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R123		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R124-126		ERJ3GEYJ103	CHIP 1/20W 10K	3	
R127-130		ERJ3GEYJ104	CHIP 1/20W 100K	4	
R134		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R157		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R158		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R161		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R162		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R167		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R198		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R302		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R304		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R306		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R307		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R308		ERJ3GEYJ274	CHIP 1/20W 270K	1	
R310		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R311		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R312		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R313		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R314		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R315		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R316		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R317		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R318		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R319-322		ERJ3GEYJ103	CHIP 1/20W 10K	4	
R323		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R324,325		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	
R326		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R327		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R328		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R330		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R331		ERJ3GEY0R00	CHIP 1/20W 0	1	
R332		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R333		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R334		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R335		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R336		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R337		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R338		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R339,340		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R341		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R342,343		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R346		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R347		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R348		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R349		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R350		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R351-353		ERJ3GEYJ103	CHIP 1/20W 10K	3	
R354		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R355		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R356		ERJ3GEYJ824	CHIP 1/20W 820K	1	
R357		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R358		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R359		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R362		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R363		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R366-368		ERJ3GEYJ273	CHIP 1/20W 27K	3	
R371		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R387		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R389		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R391		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R392		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R393		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R394,395		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R396		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R397		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R398		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R399		ERJ3GEYJ181	CHIP 1/20W 180	1	
R401		ERJ3GEYJ681	CHIP 1/20W 680	1	
R402		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R403		ERJ3GEY0R00	CHIP 1/20W 0	1	
R404		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R405		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R406		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R407,408		ERJ3GEYJ561	CHIP 1/20W 560	2	

To guarantee the FUNCTION,SAFETY and *RELIABLITY of repaired units,only* use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R409		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R410		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R411		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R412		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R415,416		ERJ3GEYJ472	CHIP 1/20W 4.7K	2	
R417		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R418		ERJ3GEYG682	CHIP 1/20W 6.8K	1	
R419		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R420,421		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R422		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R423,424		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R425		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R426		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R427		ERJ3GEY0R00	CHIP 1/20W 0	1	
R428		ERJ3GEYJ683	CHIP 1/20W 68K	1	
R429		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R430		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R431		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R432,433		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	
R434		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R435		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R436		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R437		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R438		ERJ3GEYJ561	CHIP 1/20W 560	1	
R439		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R440		ERJ3GEYJ331	CHIP 1/20W 330	1	
R441		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R442		ERJ3GEYJ391	CHIP 1/20W 390	1	
R443,444		ERJ3GEYJ222	CHIP 1/20W 2.2K	2	
R445		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R446		ERJ3GEYJ271	CHIP 1/20W 270	1	
R447-449		ERJ3GEYJ102	CHIP 1/20W 1K	3	
R450		ERJ3GEYJ561	CHIP 1/20W 560	1	
R451		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R453		ERJ3GEY0R00	CHIP 1/20W 0	1	
R459		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R460		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R461		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R462		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R464		ERJ3GEY0R00	CHIP 1/20W 0	1	
R466,467		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R468		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R469		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R471		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R472		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R473		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R476		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R477		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R478		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R479		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R480		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R481		ERJ3GEY0R00	CHIP 1/20W 0	1	
R482		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R483		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R485		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R490		ERJ6GEY0R00	CHIP 1/16W 0	1	
R496		ERJ3GEYJ473	CHIP 1/20W 47K	1	
			THERMISTORS		
TH101-104		VRE0023	RESISTOR	4	
TH301		ERTD2FHK802	THERMISTOR	1	
			VARIABLE RESISTORS		
VR101,102		EVM7YSW00B14	V.RESISTOR 10K	2	
VR103		EVM7YSW00B54	V.RESISTOR 50K	1	
VR104		EVM7YSW00B25	V.RESISTOR 200K	1	
VR105		EVM7YSX00B14	V.RESISTOR 10K	1	
VR106		EVM7YSW00B14	V.RESISTOR 10K	1	
VR107		EVM7YSW00B24	V.RESISTOR 20K	1	
VR302		EVM7YSX00B13	V.RESISTOR 1K	1	
VR303		EVM7YSX00B14	V.RESISTOR 10K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
VR304		EVM7YSW00B13	V.RESISTOR 1K	1	
VR305		EVM7YSW00B23	V.RESISTOR 2K	1	
VR306		EVM7YSX00B14	V.RESISTOR 10K	1	
VR308		EVM7YSW00B55	V.RESISTOR 500K	1	
VR310		EVM7YSW00B14	V.RESISTOR 10K	1	
VR312		EVM7YSW00B14	V.RESISTOR 10K	1	
VR313		EVM7YSX00B14	V.RESISTOR 10K	1	
VR316,317		EVM7YSX00B13	V.RESISTOR 1K	2	
VR318,319		EVM7YSX00B24	V.RESISTOR 20K	2	
VR322-324		EVM7YSW00B14	V.RESISTOR 10K	3	
			MISCELLANEOUS		
		VSC2207	SYNC SHIELD CASE	1	
		VSC2247	DELAY LINE SHIELD CASE	1	
		VWJ0286	FLEXIBLE CABLE 1[illegible]P	1	
		↑	14		
		PROCESS ↔ MAIN			
	■	VEP23068C	SUB PROCESS C.B.A.		
			CAPACITORS		
C123		ECSF1CE106	TANTALUM 16V 10U	1	
C125		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C126		ECUM1H101JCV	CHIP 25V 100P	1	ECUM1H10[illegible]
C370		ECuM1H102KBV	CHIP 25V 1000P	1	
C373		ECUM1H101JCV	CHIP 25V 100P	1	
D102		MA728	DIODE	1	<R>
FL311		ELB4B002	FILTER	1	
IC105		NJM3415M	IC	1	<R>
P1		VJP1598T	CONNECTOR(MALE) 5P	1	
P2		VJP1597T	CONNECTOR(MALE) 4P	1	
Q344		2SB1218	TRANSISTOR	1	<R>
Q345		2SD1819	TRANSISTOR	1	<R>
Q346,347		2SB1218	TRANSISTOR	2	<R>
Q348		2SK316	TRANSISTOR	1	<R>
			RESISTORS		
R136		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R137		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R143		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R144		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R145,146		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R147		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R148		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R149		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R150-152		ERJ3GEYJ102	CHIP 1/20W 1K	3	
			VARIABLE RESISTOR		
VR325		EVM7YSX00B34	V.RESISTOR	1	

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP28015D	AF C.B.A.		
B601		VJP2227	CONNECTOR (MALE)	1	
			CAPACITORS		
C601		ECEA0JU471	E.CAPACITOR 6.3V 470U	1	
C602		ECUM1H270JCV	CHIP 25V 270P	1	
C603,604		ECUM1H330JCV	CHIP 25V 330P	2	
C605-607		ECUM1H103ZFV	CHIP 25V 0.01U	3	
C608-611		ECUM1H101JCV	CHIP 25V 100P	4	
C612		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C613,614		ECUM1E473KB	CHIP 25V 0.047U	2	
C615		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C616,617		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	2	
C618-620		ECEA1CKS100	E.CAPACITOR 16V 10U	3	
C621		ECRJA020E12W	TRIMMER	1	
C622		ECUM1H391KBV	CHIP 25V 390P	1	
C623		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C624,625		ECUM1C224ZFN	CHIP 16V 0.22U	2	
C626		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C627		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C628,629		ECUX1E273KBN	CHIP 25V 0.027U	2	
C630		ECUM1E683ZFN	CHIP 25V 0.063U	1	
C631		ECUX1E273KBN	CHIP 25V 0.027U	1	
C632		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C633		ECUX1E223KBN	CHIP 25V 0.023U	1	
C634		ECEA0JSN220	E.CAPACITOR 6.3V 22U	1	
C635		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C636		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C637		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C638,639		ECUM1C224ZFN	CHIP 16V 0.22U	2	
C640		ECUM1H100DCV	CHIP 50V 10P	1	
C641,642		ECEA1CKS100	E.CAPACITOR 16V 10U	2	
C645		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C646		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C648		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C649,650		ECUM1H333KB	CHIP 50V 0.033U	2	
C651		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C652		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C653		ECEA1CU100	E.CAPACITOR 16V 10U	1	
C654		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C655		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C656		ECRJA020E12X	TRIMMER	1	
C657		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C658		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C659		ECUM1H220JCV	CHIP 25V 22P	1	
C660		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C661		ECUM1H391KBV	CHIP 25V 390P	1	
C663		ECUM1H121JCV	CHIP 25V 120P	1	
D602,603		MA110	DIODE	2	<R>
D604,605		1SS250	DIODE	2	<R>
D606-608		MA110	DIODE	3	<R>
D610		MA153	DIODE	1	<R>
FL601		ELB4B004	FILTER	1	
FL602		VLF0595	FILTER	1	
FL603		ELB4B005	FILTER	1	
FL604		ELB4D001	FILTER	1	
FL605		VLF0596	FILTER	1	
IC601		MN15865VYV	IC	1	<R>
IC602		AN2583S	IC	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
IC603		AN78N05	IC	1	<R>
IC604		NJM4558M-P	IC	1	<R>
IC605		AN6562S	IC	1	<R>
IC606		NJM3415M	IC	1	<R>
IC607		MN1280Q	IC	1	<R>
L601		ELJSA560ZF	COIL 56UH	1	
L602		ELJFA330K	COIL 33UH	1	
L603		VLQEL05F101K	COIL 100UH	1	
P601		VJP1599T	CONNECTOR(MALE) 6P	1	
Q601,602		2SD1819	TRANSISTOR	2	<R>
Q603		2SB710	TRANSISTOR CHIP	1	<R>
Q604		2SB1219	TRANSISTOR	1	<R>
Q605		2SD1820	TRANSISTOR	1	<R>
Q606		2SB1219	TRANSISTOR	1	<R>
Q607		2SD1820	TRANSISTOR	1	<R>
Q608-612		2SD1819	TRANSISTOR	5	<R>
Q613		2SA1255	TRANSISTOR	1	<R>
Q614		2SC3138	TRANSISTOR	1	<R>
Q615		2SD1819	TRANSISTOR	1	<R>
Q616,617		2SB1220	TRANSISTOR	2	<R>
Q618-621		2SD1819	TRANSISTOR	4	<R>
			RESISTORS		
R602,603		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R604		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R605		ERJ3GEYJ683	CHIP 1/20W 68K	1	
R606		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R607		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R608		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R609,610		ERJ3GEYJ563	CHIP 1/20W 56K	2	
R611		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R612		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R613		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R614		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R615		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R616,617		ERJ3GEYJ104	CHIP 1/20W 100K	2	
R618		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R619		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R620,621		ERJ3GEYJ152	CHIP 1/20W 1.5K	2	
R622		ERJ3GEYJ271	CHIP 1/20W 270	1	
R623		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R624		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R625		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R626-629		ERJ3GEYJ102	CHIP 1/20W 1K	4	
R630		ERJ3GEYJ751	CHIP 1/20W 750	1	
R631		ERJ3GEYJ331	CHIP 1/20W 330	1	
R632		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R633-636		ERJ3GEYJ224	CHIP 1/20W 220K	4	
R637		ERJ3GEYJ394	CHIP 1/20W 390K	1	
R638		ERJ6GEYF333	CHIP 1/16W 33K	1	
R639		ERJ6GEYF473	CHIP 1/16W 47K	1	
R640		ERJ3GEYJ394	CHIP 1/20W 390K	1	
R641		ERJ6GEYF333	CHIP 1/16W 33K	1	
R642		ERJ6GEYF473	CHIP 1/16W 47K	1	
R643,644		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R645		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R646		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R647		ERJ3GEYJ124	CHIP 1/20W 120K	1	
R648		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R649,650		ERJ3GEYJ123	CHIP 1/20W 12K	2	
R651		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R652		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R653		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R654,655		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R656		ERJ3GEYJ220	CHIP 1/20W 22	1	
R657,658		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R659		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R660-664		ERJ3GEYJ104	CHIP 1/20W 100K	5	
R665,666		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R667		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R668		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R669,670		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R671,672		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R673,674		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R675		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R676		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R677		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R678		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R679,680		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R681,682		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R683		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R684		ERJ3GEYJ681	CHIP 1/20W 680	1	
R685		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R686		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R687		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R688		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R689		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R690		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R691		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R692		ERJ3GEYJ100	CHIP 1/20W 10	1	
R693-696		ERJ3GEYJ103	CHIP 1/20W 10K	4	
R697		ERJ3GEYJ394	CHIP 1/20W 390K	1	
R698		ERJ3GEYJ474	CHIP 1/20W 470K	1	
R699		ERJ3GEYJ220	CHIP 1/20W 22	1	
R800		ERJ3GEYJ221	CHIP 1/20W 220	1	
R801		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R804		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R805		ERJ3GEYJ101	CHIP 1/20W 100	1	
R806		ERJ3GEY0R00	CHIP 1/20W 0	1	
T601		ETE13K43AY	TRANSFORMER	1	<R>
			VARIABLE RESISTORS		
VR601		EVML1GA00B53	V.RESISTOR 5K	1	
VR602		EVML1GA00B15	V.RESISTOR 100K	1	
VR603		EVM7YSX00B14	V.RESISTOR 10K	1	
X601		VSX0196	CRYSTAL OSCILLATOR	1	
			MISCELLANEOUS		
		VSC2318	AF SHIELD CASE	1	
	■	VEP22073B	SENSOR C.B.A.		
B201		VJP1948	CONNECTOR (MALE)	1	
			CAPACITORS		
C201		ECSF1AE476	TANTALUM 10V 47U	1	
C202,203		ECUM1H105JCV	CHIP 25V 1U	2	
C204		ECUX1H390JCM	CHIP 50V 39P	1	
C206		ECRLC010E12V	TRIMMER	1	ECRLC010A12T
C207		ECSF1AE106	TANTALUM 10V 10U	1	
C208		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C209		ECSF1CE336	TANTALUM 16V 33U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C210		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C211		ECUM1E104MD	CHIP 25V 0.1U	1	
C212		ECSF1EE106	T.CAPACITOR 25V 10U	1	
C213		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C214		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C215,216		ECUM1H270JCV	CHIP 25V 27P	2	
C217		ECSF1EE475	TANTALUM 25V 4.7U	1	
C218,219		ECUM1H270JCV	CHIP 25V 27P	2	
C220		ECSF1CE476	TANTALUM 16V 47U	1	
C221,222		ECUM1H270JCV	CHIP 25V 27P	2	
C223		ECUM1H682KBV	CHIP 50V 0.068U	1	
C224		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C225		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C226		ECSF1VE475	T.CAPACITOR 35V 4.7U	1	
C227		ECSF1AE106	TANTALUM 10V 10U	1	
C228		ECSF1EE106	T.CAPACITOR 25V 10U	1	
C229		ECSF0JE476	TANTALUM 6.3V 47U	1	
C230-233		ECUX1E104ZFN	CHIP 25V 0.1U	4	
C236		ECUM1H105JCV	CHIP 25V 1U	1	
C237		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C238-240		ECUM1H330JCV	CHIP 25V 330P	3	
C241		ECUM1H101JCV	CHIP 25V 100P	1	
C242,243		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C244		ECUX1E473ZFN	CHIP 25V 0.047U	1	
C245		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C246		ECUM1H105JCV	CHIP 25V 1U	1	
C247		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C248		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C250		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C251		ECUM1E330JCV	CHIP 25V 330P	1	ECUM1H33[illegible]
C252		ECUX1E104ZFN	CHIP 25V 0.1U	1	
D202		MA141A	DIODE	1	<R>
D204,205		MA110	DIODE	2	<R>
D207		MA159	DIODE	1	<R>
D209		MA110	DIODE	1	<R>
D210		MA141K	DIODE	1	<R>
FL201		ELB5B005	FILTER	1	
FP201		VJS2125	CONNECTOR	1	
IC201		MN53015XBM	IC	1	<R>
IC202		UPD6147G	IC	1	<R>
L201		VLQ0163K150	COIL 15UH	1	
L202,203		VLQ0187K150	COIL 15UH	2	
L204-206		VLQ0163K150	COIL 15UH	3	
L207		VLQ0187K150	COIL 15UH	1	
L210-212		VLQ0291	COIL	3	
Q201-203		2SD1819	TRANSISTOR	3	<R>
Q204		2SC3930	TRANSISTOR	1	<R>
Q205		2SA1610	TRANSISTOR	1	<R>
Q206		2SC4176	TRANSISTOR	1	<R>
Q207		2SA1610	TRANSISTOR	1	<R>
Q208		2SC4176	TRANSISTOR	1	<R>
Q209		2SA1610	TRANSISTOR	1	<R>
Q210		2SC4176	TRANSISTOR	1	<R>
Q211		2SC3930	TRANSISTOR	1	<R>

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			RESISTORS		
R201,202		ERJ3GEYJ331	CHIP 1/20W 330	2	
R203		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R204		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R205		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R206		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R207		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R208		ERJ3GEYJ471	CHIP 1/20W 470	1	
R209		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R210		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R211		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R212		ERJ3GEYJ330	CHIP 1/20W 33	1	
R213,214		ERJ3GEYJ681	CHIP 1/20W 680	2	
R215		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R216		ERJ6GEYJ103	CHIP 1/16W 10K	1	
R217		ERJ3GEYJ101	CHIP 1/20W 100	1	
R218		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R219		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R220		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R221		ERJ3GEYJ101	CHIP 1/20W 100	1	
R222		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R223,224		ERJ3GEYJ331	CHIP 1/20W 330	2	
R225,226		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R227		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R228		ERJ3GEYJ221	CHIP 1/20W 220	1	
R229		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R230		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R231		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R232,233		ERJ3GEYJ101	CHIP 1/20W 100	2	
R234		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R235		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R236		ERJ3GEYJ270	CHIP 1/20W 27	1	
			VARIABLE RESISTORS		
VR201		EVM7YSX00B25	V.RESISTOR 200K	1	
VR202		EVM7YSW00B54	V.RESISTOR 50K	1	
X201		VSX0239A	CRYSTAL OSCILLATOR	1	VSX0239
	■	VEP22074A	C.D.S. PACK C.B.A.		
			CAPACITORS		
C501		ECUM1H180JCV	CHIP 25V 18P	1	
C502		ECUX1E473ZFN	CHIP 25V 0.047U	1	[illegible]
C503		ECUM1H180JCV	CHIP 25V 18P	1	
C504		ECST1DC685Z	T.CAPACITOR 20V 6.8U	1	
C506		ECUM1H180JCV	CHIP 25V 18P	1	
C507		ECST1AC106Z	T.CAPACITOR 10V 10U	1	
IC501		AN2010S	IC	1	<R>
PK501		VJR0365	CONNECTOR	1	
			RESISTOR		
R501		ERJ3GEYJ102	CHIP 1/20W 1K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP23061F	ENCODER PACK C.B.A.		
			CAPACITORS		
C901		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C903		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C904		ECST1AC106Z	T.CAPACITOR 10V 10U	1	
C905		ECUX1H470JCM	CHIP 50V 47P	1	
C906,907		ECUM1H102KBV	CHIP 25V 1000P	2	
C908		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C909		ECST1AC106Z	T.CAPACITOR 10V 10U	1	
C910		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C911		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C912		ECUX1H103ZFN	CHIP 50V 0.01U	1	
IC901		AN2253FA	IC	1	<R>
L901		VLQ0163K330	COIL 33UH	1	
PK901,902		VJR0367	CONNECTOR	2	
Q901		2SA1532	TRANSISTOR	1	<R>
Q902		2SB1218	TRANSISTOR	1	<R>
			RESISTORS		
R901,902		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R903		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R904		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R905		ERJ3GEYOR00	CHIP 1/20W 0	1	
R907		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R908		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R909		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R910		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R911		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R912		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R913		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R914		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R915		ERJ3GEYJ560	CHIP 1/20W 56	1	
R916		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R917		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R918		ERJ3GEYG911	CHIP 1/20W 910	1	
R919		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R921		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R923		ERJ3GEYJ102	CHIP 1/20W 1K	1	
	■	VEP27033C	E.V.F. C.B.A.		
			CAPACITORS		
C701		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C702		ECSE1CY684VL	T.CAPACITOR 16V 0.68U	1	
C703		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C704		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C705		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C706		ECUX1H821JCN	CHIP 50V 820P	1	
C707		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C708		ECUX1E223KBN	CHIP 25V 0.023U	1	
C709		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C710		ECUM1H152JN	CHIP 50V 1500P	1	
C711		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C712		ECEA1AF470	E.CAPACITOR 10V 47U	1	

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Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C713		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C714		ECQK1332J2	P.CAPACITOR	1	
C715		ECEA1CKS220I	E.CAPACITOR 16V 22U	1	
C716		ECUX1H181KN	CHIP 50V 180P	1	
C717		ECEA1HKS4R7	E.CAPACITOR 50V 4.7U	1	
C718		VCK0057K121	C.CAPACITOR 120P	1	
C719		VCK0058K331	C.CAPACITOR 330P	1	
C720,721		ECUX1H473ZFN	CHIP 50V 0.047U	2	
C722		ECUX1H104ZFN	CHIP 50V 0.1U	1	
D701		MA151K	DIODE	1	<R>
D702		ERA91-02	DIODE	1	<R>
D703		ERA34-10	DIODE	1	<R>
IC701		AN2510S	IC	1	<R>
L701		ELC04D002	COIL	1	
L702		ELH5L313	COIL	1	
P701		VJP1233T	CONNECTOR	1	
P702		VJP1231T	CONNECTOR(MALE) 4P	1	
Q701		2SB709	TRANSISTOR CHIP	1	<R>
Q702		2SD968A	TRANSISTOR	1	<R>
Q703		2SA1022	TRANSISTOR	1	<R>
			RESISTORS		
R701		ERJ6GEYK6R8	CHIP 1/10W 6.8	1	
R702		ERJ6GEYG562	CHIP 1/16W 5.6K	1	
R703		ERJ6GEYJ392	CHIP 1/16W 3.9K	1	
R704		ERJ6GEYJ182	CHIP 1/16W 1.8K	1	
R705		ERJ6GEYK4R7	CHIP 1/16W 4.7	1	
R706		ERJ6GEYJ150	CHIP 1/16W 15	1	
R707		ERJ6GEYJ151	CHIP 1/16W 150	1	
R708		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R709		ERJ6GEYJ163	CHIP 1/16W 16K	1	
R710		ERJ6GEYJ561	CHIP 1/16W 560	1	
R711		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R713		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R714		ERJ6GEYJ562	CHIP 1/16W 5.6K	1	
R715,716		ERJ6GEYJ102	CHIP 1/16W 1K	2	
R717		ERJ6GEYJ561	CHIP 1/16W 560	1	
R718		ERJ6GEYJ222	CHIP 1/16W 2.2K	1	
R719		ERJ8GCJ222V	CHIP 1/8W 2.2K	1	
R720		ERJ6GEYJ274	CHIP 1/16W 270K	1	
R721		ERJ6GEYJ223	CHIP 1/16W 22K	1	
R722		ERJ6GEYJ682	CHIP 1/16W 6.8K	1	
R723		ERJ6GEYJ102	CHIP 1/16W 1K	1	
R724		ERJ6GEYJ105	CHIP 1/16W 1M	1	
R726		ERJ6GEYK225	CHIP 1/16W 2.2M	1	
R727		ERJ6GEYK185	CHIP 1/16W 1.8M	1	
R728		ERJ6GEYK335	CHIP 1/16W 3.3M	1	
R729		ERJ6GEYK125	CHIP 1/16W 1.2M	1	
R730		ERJ8GCYJ821	CHIP 1/8W 820	1	
T701		ETF14L26A	FLYBACK TRANS.	1	<!><R>
TH701		VRT0012	THERMISTER	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			VARIABLE RESISTORS		
VR701		VRV0079B221K	V.RESISTOR 220	1	
VR702		VRV0079B472K	V.RESISTOR 4.7K	1	
VR704		VRV0027B225K	V.RESISTOR 2.2M	1	<!><R>
VR705		VRV0027B105K	V.RESISTOR 1M	1	
			MISCELLANEOUS		
		VEE3737	CRT SOCKET	1	<!><R>
	■	VEP03480C	MAIN C.B.A.		
			CAPACITORS		
C1001		ECUX1H820JCM	CHIP 50V 82P	1	
C1002		ECUM1H560KBV	CHIP 50V 56P	1	
C1003		ECUM1H471KBV	CHIP 50V 470P	1	ECUM1H[illegible]
C1004		ECUX1C105ZFM	CHIP 16V 1U	1	
C1005,1006		ECUX1E473ZFN	CHIP 25V 0.047U	2	[illegible]
C1007		ECEA1EU101	E.CAPACITOR 25V 100U	1	
C1008,1009		ECUX1C105ZFM	CHIP 16V 1M	2	ECUM1C105ZFM
C1010		ECEA1EU101	E.CAPACITOR 25V 100U	1	
C1011		ECUX1E473ZFN	CHIP 25V 0.047U	1	[illegible]
C1012		ECEA0JKJ221	E.CAPACITOR 6.3V 220U	1	
C1013,1014		ECUX1E223ZFN	CHIP 25V 0.022U	2	
C1015		ECEA1AKJ221	E.CAPACITOR 10V 220U	1	
C1016		ECEA0JKJ221	E.CAPACITOR 6.3V 220U	1	
C1019		ECEA1AKJ221	E.CAPACITOR 10V 220U	1	
C1020,1021		ECEA1CKJ101	E.CAPACITOR 16V 100U	2	
C1026		ECUX1H153KBN	CHIP 50V 0.015U	1	
C1027		ECUX1H681JN	CHIP 50V 680P	1	
C1028		ECEA1CKA470	E.CAPACITOR 16V 47U	1	
C1029		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C1030,1031		ECEA1AKA330	E.CAPACITOR 10V 33U	2	
C1032		ECUX1H102KBN	CHIP 50V 1000P	1	
C1033		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C1034		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C1035		ECEA0JKJ221	E.CAPACITOR 6.3V 220U	1	
C1040		ECUX1E223ZFN	CHIP 25V 0.022U	1	
C1041		ECEA1AK101	E.CAPACITOR 10V 100U	1	
C1042		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C2001,2002		ECUM1H101JCV	CHIP 25V 100P	2	
C2003		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C2004,2005		ECEA0JKA470	E.CAPACITOR 6.3V 47U	2	
C2006		ECUX1E473ZFN	CHIP 25V 0.047U	1	[illegible]
C2007		ECUM1H472ZFV	CHIP 50V 4700P	1	
C2009,2010		ECEA0JK220	E.CAPACITOR 6.3V 22U	2	
C2011		ECUX1E473ZFN	CHIP 25V 0.047U	1	[illegible]
C2012		ECUM1H222KBV	CHIP 25V 2200P	1	
C2013		ECUM1H102KBV	CHIP 25V 1000P	1	
C2014		ECEA1VKN2R2	E.CAPACITOR 35V 2.2U	1	
C2015,2016		ECUX1C105ZFM	CHIP 16V 1U	2	ECUM1C105ZFM
C2017,2018		ECUM1H102KBV	CHIP 25V 1000P	2	
C2019		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C2020		ECUM1H471KBV	CHIP 50V 470P	1	
C2021,2022		ECUX1C105ZFM	CHIP 16V 1U	2	ECUM1C105ZFM
C2023		ECUX1E333ZFN	CHIP 25V 0.033U	1	
C2024		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C2025,2026		ECEA0JKA470	E.CAPACITOR 6.3V 47U	2	
C2027		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C2028		ECUX1C105ZFM	CHIP 16V 1U	1	ECUM1[illegible]
C2029		ECUM1H102KBV	CHIP 25V 1000P	1	
C2030		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C2032		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C2033		ECUX1C105ZFM	CHIP 16V 1U	1	ECUM1C[illegible]
C2034		ECUM1H101JCV	CHIP 25V 100P	1	
C2035		ECUM1H102KBV	CHIP 25V 1000P	1	
C2036		ECUX1C105ZFM	CHIP 16V 1U	1	ECUM1[illegible]
C2037		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	

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Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C2038		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C2039		ECEA0GK101	E.CAPACITOR 4V 100U	1	
C2040		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C2041		ECUX1C105ZFM	CHIP 16V 1U	1	
C2042		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C2043		ECEA1EKK010	E.CAPACITOR 25V 1U	1	
C2044		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C2045		ECQV1H393JZ	P.CAPACITOR 50V 0.039U	1	
C2046-2048		ECUX1E333ZFN	CHIP 25V 0.033U	3	
C2049		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C2050		ECUX1C105ZFM	CHIP 16V 1U	1	
C2051		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C2053		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C2054		ECUX1H333ZFN	CHIP 50V 0.033U	1	
C2055		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C2056-2058		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	3	
C2059-2061		ECUM1H472ZFV	CHIP 50V 4700P	3	
C2062-2064		ECEA1AKA470	E.CAPACITOR 10V 47U	3	
C2065-2067		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	3	
C2068-2070		ECUX1H103ZFN	CHIP 50V 0.01U	3	
C2072		ECUM1C474ZFM	CHIP 16V 0.47U	1	
C2073		ECUX1E104ZFM	CHIP 25V 0.1U	1	
C2074, 2075		ECUM1H105JCV	CHIP 25V 1U	2	
C2076		ECUX1C105ZFM	CHIP 16V 1U	1	
C2077		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C2078		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C2079		ECUX1H560JCM	CHIP 50V 56P	1	
C2081		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C2082		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C3001		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C3002		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C3005		ECEA1AK470	E.CAPACITOR 10V 47U	1	
C3007		ECUX1E223ZFN	CHIP 25V 0.022U	1	
C3010, 3011		ECEA0JK221	E.CAPACITOR 6.3V 220U	2	
C3012		ECUM1H220JCV	CHIP 25V 22P	1	
C3013		ECUM1H122KBV	CHIP 25V 1200P	1	
C3014		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C3015, 3016		ECUM1H103ZFV	CHIP 25V 0.01U	2	
C3017		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3018		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C3019		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C3020		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C3021		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C3022		ECUM1H101JCV	CHIP 25V 100P	1	
C3024		ECUX1C105ZFM	CHIP 16V 1U	1	
C3025		ECUM1H471KBV	CHIP 50V 470P	1	
C3026		ECUM1H391KBV	CHIP 50V 390P	1	
C3027		ECUM1H331JV	CHIP 50V 330P	1	
C3028		ECUM1C334ZFN	CHIP 16V 0.33U	1	
C3029		ECUX1H820JCM	CHIP 50V 82P	1	
C3030		ECUX1H390JCM	CHIP 50V 39P	1	
C3032		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C3033		ECEA0JU221	E.CAPACITOR 6.3V 220U	1	
C3034		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C3045		ECUX1H560JCM	CHIP 50V 56P	1	
C3047		ECUX1H470JCM	CHIP 50V 47P	1	
C3048		ECUX1H680JCM	CHIP 50V 68P	1	
C3049		ECUX1H681KBM	CHIP 50V 680P	1	
C3050		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C3051		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C3052		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C3053		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C3054-3056		ECUM1H103ZFV	CHIP 25V 0.01U	3	
C3057		ECUM1H101JCV	CHIP 25V 100P	1	
C3058		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C3059		ECUX1H470JCM	CHIP 50V 47P	1	
C3060		ECUM1H100CCV	CHIP 25V 10P	1	
C3061, 3062		ECUM1H103ZFV	CHIP 25V 0.01U	2	
C3063		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C3064, 3065		ECUM1H103ZFV	CHIP 25V 0.01U	2	
C3066		ECEA0JU221	E.CAPACITOR 6.3V 220U	1	
C3068		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C3070		ECUX1H680JCM	CHIP 50V 68P	1	
C3071		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C3072		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C3074, 3075		ECUM1H103ZFV	CHIP 25V 0.01U	2	
C3076		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C3077		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3080		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C3083		ECUM1H220JCV	CHIP 25V 22P	1	
C3085		ECUM1H151JV	CHIP 25V 150P	1	
C3086		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C3087		ECUX1H681KBM	CHIP 25V 680P	1	
C3099		ECUM1H220JCV	CHIP 25V 22P	1	
C3100		ECUM1H270JCV	CHIP 25V 27P	1	
C3104		ECUM1H100CCV	CHIP 25V 10P	1	
C3105		ECUM1H181JV	CHIP 50V 180P	1	
C3110		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C3111		ECUM1H101JCV	CHIP 25V 100P	1	
C3112		ECKF1H103ZF	C.CAPACITOR 50V 0.01U	1	
C3113		ECUM1H330JCV	CHIP 25V 33P	1	
C3114		ECUX1H820JCM	CHIP 50V 82P	1	
C3115		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C3501, 3502		ECUM1H103ZFV	CHIP 25V 0.01U	2	
C3503		ECUM1H121JCV	CHIP 25V 120P	1	
C3504		ECUM1H151JV	CHIP 25V 150P	1	
C3505		ECUX1H390JCM	CHIP 50V 39P	1	
C3506, 3507		ECUM1H103ZFV	CHIP 25V 0.01U	2	
C3508		ECQV1H334JZ	P.CAPACITOR 50V 0.33U	1	
C4001		ECQP1222JZ	P.CAPACITOR 100V 2200P	1	
C4002		ECRHC120N11	TRIMER	1	
C4003		ECUM1H562KBV	CHIP 50V 5600P	1	
C4004		ECUX1H472KBM	CHIP 50V 4700P	1	
C4005		ECUM1H122KBV	CHIP 25V 1200P	1	
C4007		ECEA1HKL010	E.CAPACITOR 35 50V 1U	1	ECSF1VE105
C4008		ECUX1H223ZFN	CHIP 50V 0.022U	1	
C4009		ECEA0JKA330	E.CAPACITOR 6V 33U	1	
C4011		ECUM1H822KBV	CHIP 50V 8200P	1	
C4012		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C4013		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4014		ECUM1H182KBV	CHIP 25V 1800P	1	
C4015		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C4016		ECEA1CKA470	E.CAPACITOR 6.3V 47U	1	
C4017		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C4018		ECEA0JKA330	E.CAPACITOR 6V 33U	1	
C4019		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4021		ECUX1E103KBN	CHIP 25V 0.01U	1	
C4024		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C4025		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C4026		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C4027		ECUX1H682KBN	CHIP 50V 6800P	1	
C4028		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C4029		ECUM1H222KBV	CHIP 25V 2200P	1	
C4030		ECEA1AK101	E.CAPACITOR 10V 100U	1	
C4031		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C4032		ECEA1HKN010	E.CAPACITOR 50V 1U	1	
C4033		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C4034		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C4038		ECEA1AKA330	E.CAPACITOR 10V 33U	1	
C4039		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C4040		ECUM1H151JV	CHIP 25V 150P	1	
C5001		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C5002		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5003		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C5004		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5005		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C5006		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5007		ECUX1H473ZFN	CHIP 50V 0.047U	1	
C5008		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5009		ECUX1C105ZFM	CHIP 16V 1U	1	
C5010, 5011		ECUM1H103ZFV	CHIP 25V 0.01U	2	
C5012, 5013		ECUX1C105ZFM	CHIP 16V 1U	2	
C5014, 5015		ECUX1E103ZFM	CHIP 25V 0.01U	2	
C5016		ECUX1C105ZFM	CHIP 16V 1U	1	
C5017-5020		ECUM1H181JV	CHIP 50V 180P	4	
C5021		ECUX1C105ZFM	CHIP 16V 1U	1	
C5022		ECUX1H470JCM	CHIP 50V 47P	1	
C5023		ECUM1H270JCV	CHIP 25V 27P	1	
C5024		ECEB0JU101S	E.CAPACITOR 6.3V 100U	1	
C5025		ECUM1H103ZFV	CHIP 25V 0.01U	1	

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C5027		ECUM1H101JCV	CHIP 25V 100P	1	
C5030		ECUM1H220JCV	CHIP 25V 22P	1	
C5032		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C5033		ECUM1H332KBV	CHIP 25V 3300U	1	
C5034		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C5035		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C5036		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C5037		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C5038		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C5039		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C5040		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C5041		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C5047-5050		ECUX1H473ZFN	CHIP 50V 0.047U	4	
C5051		ECUM1H101JCV	CHIP 25V 100P	1	
C6001		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C6002		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C6003		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C6004		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C6005		ECUM1H220JCV	CHIP 25V 22P	1	
C6006,6007		ECUM1H105JCV	CHIP 25V 1U	2	
C6008		ECUX1C105ZFM	CHIP 16V 1U	1	
C6009-6012		ECUM1H103ZFV	CHIP 25V 0.01U	4	
C6013		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C6014		ECEA0JKA470	E.CAPACITOR 16V 47U	1	
C6015		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C6016,6017		ECUX1E102KBM	CHIP 25V 1000P	2	
C6018-6020	[illegible]	ECUX1E104ZFN	CHIP 25V 0.1U	3	
C6021		ECEA1EU470	E.CAPACITOR 25V 47U	1	
C6022		ECUM1H560ZFV	CHIP 50V [illegible] 56P	1	[illegible]
C6025		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C6026		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C6027		VCYD1C104MR1	S.CAPACITOR 16V 0.1U	1	
C6028,6029		ECUX1E104ZFN	CHIP 25V 0.1U	2	
C6034		ECUX1E103ZFM	CHIP 25V 0.01U	1	
C8001		ECUX1H103ZFM	CHIP 50V 0.01U	1	
C8002		ECUM1H121JCM	CHIP 50V 120P	1	
C8003		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C8005,8006		ECUM1H103ZFV	CHIP 25V 0.01U	2	
C8009		ECUM1H472ZFV	CHIP 50V 4700P	1	
C8010		ECUX1H470JCM	CHIP 50V 47P	1	
C8011		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C8012		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C8013		ECQB1H223JZ	P.CAPACITOR 50V 2200P	1	
C8014		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C8015		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C8016		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C8017-8020		ECUX1H103ZFN	CHIP 50V 0.01U	4	
C8021		ECUM1H103ZFV	CHIP 25V 0.01U	1	
C8022-8025		ECUX1H103ZFN	CHIP 50V 0.01U	4	
C8026		ECUX1C105ZFM	CHIP 16V 1U	1	
C8027		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C8028		ECUX1E080CCM	CHIP 25V 8P	1	ECUM1H080CCF
C8029		ECUM1H102KBV	CHIP 25V 1000P	1	
C8030		ECEA0JU221	E.CAPACITOR 6.3V 220U	1	
C8031		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C8032		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C8033		ECUX1E104ZFN	CHIP 25V 0.1U	1	
C8034		ECUM1H102KBV	CHIP 25V 1000P	1	
C8035		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C8036		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C8037		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C8038		ECUX1H680JCM	CHIP 50V 68P	1	
C8044		ECUX1H103ZFN	CHIP 50V 0.01U	1	
C8045,8046		ECUM1H103ZFV	CHIP 25V 0.01U	2	
C8050		ECUM1H560KBV	CHIP 50V 56P	1	ECUM1H561KBF
C8051		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C8052		ECUM1H330JCV	CHIP ~~25V~~ 33U	1	
C6020		ECUM1H472ZF	50		
D1001		MA141K	DIODE	1	<R>
D1003		MA159A	DIODE	1	<R>
D1004		MA3075H	DIODE	1	<R>
D2001-2003		DA204U	DIODE	3	<R>
D2005		MA121	DIODE	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
D2008		MA141K	DIODE	1	<R>
D2009-2011		DAN202U	DIODE	3	<R>
D2012,2013		MA141K	DIODE	2	<R>
D3002		DAN202U	DIODE	1	<R>
D3003		MA141K	DIODE	1	<R>
D3011		MA165	DIODE	1	<R>
D4001		DAN202U	DIODE	1	<R>
D4004		MA141K	DIODE	1	<R>
D6003		DAP202U	DIODE	1	<R>
D6004		MA159A, MA121	DIODE	1	<R>
D6006-6008		MA141K	DIODE	3	<R>
D6012		DAN202U	DIODE	1	<R>
D6013-6017		DAP202U	DIODE	5	<R>
D6018,6019		DAN202U	DIODE	2	<R>
D6021		MA141A	DIODE	1	<R>
D6023		DAP202U	DIODE	1	<R>
D6025		DAN202U	DIODE	1	<R>
D6026		MA141K	DIODE	1	<R>
D6034		MA141K	DIODE	1	<R>
D8001		MA141A	DIODE	1	<R>
D8002		MA141K	DIODE	1	<R>
DL3001		EFDCD645M12A	DELAY LINE	1	<R>
F1001		VSF0058	FUSE	1	<!> <R>
FL3001		ELB4C005	FILTER	1	
FL3003,04		VLF0599	FILTER	2	
FL3005		VLF0593	FILTER	1	
FL5001		VLF0625	FILTER	1	
FL5002		VLF0593	FILTER	1	
FL8001		ELB4B007	FILTER	1	
FL8002		ELB4B025	FILTER	1	
FL8003		VLF0627	FILTER	1	
IC1001		BA6149LS	IC	1	<R>
IC1002		UN102	IC	1	<R>
IC1003		UPC358G2	IC	1	<R>
IC1004		UPC393G2	IC	1	<R>
IC2001		MN67461VDGF	IC	1	<R>
IC2002		AN3798S	IC	1	<R>
IC2005		BA6430S	IC	1	<R>
IC2006		TA8402F	IC	1	<R>
IC2007		MN1551VYJS	IC	1	<R>
IC3001		AN3211S	IC	1	<R>
IC3002		AN3321S	IC	1	<R>
IC4001		UPC1513G	IC	1	<R>
IC4002		UPC2300G	IC	1	<R>
IC4003		M5201L	IC	1	<R>
IC5001		AN3311S	IC	1	<R>
IC6001		MN15361VYF	IC	1	<R>
IC6002		S6700A	IC	1	<R>
IC6003		NJM2903M	IC	1	<R>
IC6004		M54543L	IC	1	<R>
IC6005		UPD4094BG	IC	1	<R>
IC8001		AN6366NS	IC	1	<R>
IC8002		MN6163AS	IC	1	<R>
L1001		ELC07D003	COIL	1	
L1002		ELC08D038	COIL	1	
L1003		ELC06D005	COIL	1	
L1004		ELC07D003	COIL	1	
L1005		ELC08D027	COIL	1	
L1006		ELC07D003	COIL	1	
L1007		ELC08D025	COIL	1	

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Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
L1008		VLQ0129	COIL 300UH	1	
L1011,1012		VLQEL05F221K	COIL 220UH	2	
L1013		VLQEL05F101K	COIL 100UH	1	
L3001-3005		VLQEL05F101K	COIL 100UH	5	
L3007		VLQ0187K150	COIL 15UH	1	
L3008		VLQEL04F560K	COIL 56UH	1	
L3012		VLQEL04F120K	COIL 12UH	1	
L3013		VLQEL05F101K	COIL 100UH	1	
L3015		VLQ0187K150	COIL 15UH	1	
L3017		VLQEL04F181K	COIL 180UH	1	
L3018		VLQEL05F151K	COIL 150UH	1	
L3501		VLQEL04F100K	COIL 10UH	1	
L3502		VLQEL04F120K	COIL 12UH	1	
L4001		VLQEL05F221K	COIL 220UH	1	
L4002,4003		ELTMR153KB	TRANSFORMER	2	
L5001		VLQEL04F390K	COIL 39UH	1	
L5002		VLQ0163K220	COIL 22UH	1	
L5004		VLQEL04F150K	COIL 15UH	1	
L5006		VLQEL04F220K	COIL 22UH	1	
L5007,5008		VLQEL05F101K	COIL 100UH	2	
L5009		VLQEL05F681K	COIL 680UH	1	
L5010		VLQEL05F101K	COIL 100UH	1	
L5013		VLQEL05F101K	COIL 100UH	1	
L6001		VLQEL05F101K	COIL 100UH	1	
L8001		VLQEL05F101K	COIL 100UH	1	
L8002		VLQEL04F101K	COIL 100UH	1	
L8006		VLQ0163J121	COIL 120UH	1	
L8009		VLQEL04F101K	COIL 100UH	1	
P1001		VJP1230T	CONNECTOR(MALE) 3P	1	
P1003		VJP1229T	CONNECTOR(MALE) 2P	1	
P2001		VJS2120	CONNECTOR	1	
P2002		VJP1923T	CONNECTOR	1	
P2003		VJP1595T	CONNECTOR(MALE) 2P	1	
P3002		VJP1598T	CONNECTOR(MALE) 5P	1	
P3003		VJS2119	CONNECTOR	1	
P3004		VJP1601T	CONNECTOR(MALE) 8P	1	
P3005		VJP1595T	CONNECTOR(MALE) 2P	1	
P4001		VJP1596T	CONNECTOR(MALE) 3P	1	
P4002		VJP1598T	CONNECTOR(MALE) 5P	1	
P4003		VJP1595T	CONNECTOR(MALE) 2P	1	
P4004		VJP1595R	CONNECTOR(MALE) 2P	1	
P4005		VJP1595T	CONNECTOR(MALE) 2P	1	
P5001		VJS2117	CONNECTOR	1	
P6002		VJP1605T	CONNECTOR(MALE) 12P	1	
P6003		VJS2107	CONNECTOR	1	
P6004		VJP1229T	CONNECTOR(MALE) 2P	1	
P6005		VJP1595T	CONNECTOR(MALE) 2P	1	
P6006		VJP1596T	CONNECTOR(MALE) 3P	1	
P6007		VJP1598T	CONNECTOR(MALE) 5P	1	
P6009		VJP1597T	CONNECTOR(MALE) 4P	1	
P6010		VJP1599T	CONNECTOR(MALE) 6P	1	
P6011		VJR0365	CONNECTOR	1	
P6012		VJP1229T	CONNECTOR(MALE) 2P	1	
P6013		VJP1595R	CONNECTOR(MALE) 2P	1	
Q1001		2SB1218	TRANSISTOR	1	<R>
Q1002		2SB956	TRANSISTOR	1	<R>
Q1003		2SD1293M	TRANSISTOR	1	<R>
Q1004,1005		2SD1328	TRANSISTOR CHIP	2	<R>
Q2001-2003		2SB956	TRANSISTOR	3	<R>
Q3001		XN1401	TRANSISTOR	1	<R>
Q3006		2SC3938	TRANSISTOR	1	<R>
Q3007		2SD1819	TRANSISTOR	1	<R>
Q3018,3019		XN4601	TRANSISTOR	2	<R>
Q3021		2SC3931	TRANSISTOR	1	<R>
Q3024		2SB1218	TRANSISTOR	1	<R>
Q3025,3026		2SB970	TRANSISTOR CHIP	2	<R>
Q3036		2SC3931	TRANSISTOR	1	<R>
Q3037		2SB1218	TRANSISTOR	1	<R>
Q3038		2SD1820	TRANSISTOR	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q3501		2SA812	TRANSISTOR	1	<R>
Q3502		2SA1175	TRANSISTOR	1	<R>
Q3503		2SD1819	TRANSISTOR	1	<R>
Q4001		2SD1820	TRANSISTOR	1	<R>
Q4005		2SB1219	TRANSISTOR	1	<R>
Q4007		2SD1823	TRANSISTOR	1	<R>
Q4009		2SD601	TRANSISTOR	1	(R,S) <R>
Q5001		XN1401	TRANSISTOR	1	<R>
Q5002,5003		XN1501	TRANSISTOR	2	<R>
Q5007		XN1401	TRANSISTOR	1	<R>
Q5008,5009		XN1501	TRANSISTOR	2	<R>
Q5013		2SC3931	TRANSISTOR	1	<R>
Q5014		2SD1819	TRANSISTOR	1	<R>
Q5015		2SC3931	TRANSISTOR	1	<R>
Q5018		2SD1819	TRANSISTOR	1	<R>
Q6001		2SB1218	TRANSISTOR	1	<R>
Q6002,6003		2SB779	TRANSISTOR	2	<R>
Q6004		2SD1820	TRANSISTOR	1	<R>
Q6005		2SD1819	TRANSISTOR	1	<R>
Q8001		2SC3931	TRANSISTOR	1	<R>
Q8002		2SD1819	TRANSISTOR	1	<R>
Q8004		2SB1218	TRANSISTOR	1	<R>
Q8005,8006		2SC3931	TRANSISTOR	2	<R>
Q8007		2SD1819	TRANSISTOR	1	<R>
Q8010		2SD1819	TRANSISTOR	1	<R>
Q8011		XN1401	TRANSISTOR	1	<R>
Q8014		2SD1819	TRANSISTOR	1	<R>
			COMBINATION PARTS		
QR1001		GA1L4M	TRANSISTOR-RESISTOR	1	
QR1002		FA1L4M	TRANSISTOR-RESISTOR	1	
QR2004		GA1L4M	TRANSISTOR-RESISTOR	1	
QR2005		GN1F4Z	TRANSISTOR-RESISTOR	1	
QR3001		GN1F4M	TRANSISTOR-RESISTOR	1	
QR3006		GA1F4M	TRANSISTOR-RESISTOR	1	
QR3007		XN1212	TRANSISTOR-RESISTOR	1	
QR3013		XN1215	TRANSISTOR-RESISTOR	1	
QR3018		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3019		GN1F4M	TRANSISTOR-RESISTOR	1	
QR3027		GA1F4Z	TRANSISTOR-RESISTOR	1	
QR3028		XN1213	TRANSISTOR-RESISTOR	1	
QR3030		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3035		GA1L4M	TRANSISTOR-RESISTOR	1	
QR4002		GA1F4M	TRANSISTOR-RESISTOR	1	
QR4004		GA1L4M	TRANSISTOR-RESISTOR	1	
QR5001		XN1213	TRANSISTOR-RESISTOR	1	
QR5002		XN1112	TRANSISTOR-RESISTOR	1	
QR5003		XN1213	TRANSISTOR-RESISTOR	1	
QR5004		XN1112	TRANSISTOR-RESISTOR	1	
QR5008		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6003		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6004		XN1213	TRANSISTOR-RESISTOR	1	
QR6009,10		GA1L4M	TRANSISTOR-RESISTOR	2	
QR6011		GN1L4M	TRANSISTOR-RESISTOR	1	
QR6012		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6013-15		GN1A4Z	TRANSISTOR-RESISTOR	3	
QR6016		GN1L4M	TRANSISTOR-RESISTOR	1	
QR6017,18		GN1A4Z	TRANSISTOR-RESISTOR	2	
QR6019		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6023		GN1A4Z	TRANSISTOR-RESISTOR	1	
QR6024,25		GA1L4M	TRANSISTOR-RESISTOR	2	
QR6026		GN1L4M	TRANSISTOR-RESISTOR	1	
QR6027,28		GA1L4M	TRANSISTOR-RESISTOR	2	
QR6033		GA1L4L	TRANSISTOR-RESISTOR	1	
QR6035		GN1L4M	TRANSISTOR-RESISTOR	1	
QR6036		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6037		XN4316	TRANSISTOR-RESISTOR	1	
QR8001		GN1F4M	TRANSISTOR-RESISTOR	1	
QR8003		GA1F4M	TRANSISTOR-RESISTOR	1	
QR8004		XN4215	TRANSISTOR-RESISTOR	1	
QR8005		GN1F4M	TRANSISTOR-RESISTOR	1	
QR8006		GA1F4Z	TRANSISTOR-RESISTOR	1	
QR8007		GA1L4M	TRANSISTOR-RESISTOR	1	

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			RESISTORS		
R1001		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R1002		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R1003		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1004		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R1005		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1006		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R1007		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1008		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R1009		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R1012,1013		ERJ8GCYJ122	CHIP 1/8W 1.2K	2	
R1014,1015		ERJ8GCYJ152	CHIP 1/8W 1.5K	2	
R1018		ERJ8GCYJ122	CHIP 1/8W 1.2K	1	
R1019		ERJ8GCYJ821	CHIP 1/8W 820	1	
R1020,1021		ERJ3GEYJ183	CHIP 1/20W 18K	2	
R1022,1023		ERJ3GEYJ681	CHIP 1/20W 680	2	
R1024		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R1025		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R1026-1031		ERJ3GEYJ391	CHIP 1/20W 390	6	
R1032		ERJ3GEYJ821	CHIP 1/20W 820	1	
R1033		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R1035		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R1036		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R1037		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R1038		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R1039		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R1040		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R1041		ERJ3GEYJ101	CHIP 1/20W 100	1	
R1042		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R1043		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R1044		ERJ8GCYJ560	CHIP 1/8W 56	1	
R1045		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R1046		ERJ3GEYJ684	CHIP 1/20W 680K	1	
R1047		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1048		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R1049		VSF0015A10	FUSE	1	<!><R>
R1050		VSF0015A08	IC PROTECTOR	1	<!><R>
R2001,2002		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R2003		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R2004		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R2005		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R2006		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R2007		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R2008		ERJ3GEY0R00	CHIP 1/20W 0	1	
R2009		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R2010		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R2011		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R2012		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R2013		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R2014		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2015		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R2016		ERJ3GEY0R00	CHIP 1/20W 0	1	
R2017		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2018		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R2019		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R2020		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R2021		ERJ3GEY0R00	CHIP 1/20W 0	1	
R2022		ERJ3GEYJ271	CHIP 1/20W 270	1	
R2025		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2028		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R2029		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2030		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R2031		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R2032		ERJ3GEYJ274	CHIP 1/20W 270K	1	
R2034		ERJ3GEYJ272	CHIP 1/20W 2,7K	1	
R2036,2037		ERJ3GEYJ330	CHIP 1/20W 33	2	
R2038		ERDS2TJR68	C.RESISTOR 1/4W 0.68	1	
R2039		ERJ3GEYJ330	CHIP 1/20W 33	1	
R2040		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R2041		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R2042		ERJ3GEYJ683	CHIP 1/20W 68K	1	
R2043		ERJ3GEYJ221	CHIP 1/20W 220	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R2044		ERJ3GEYJ820	CHIP 1/20W 82	1	
R2045		ERJ8GCYK2R2	CHIP 1/8W 2.2	1	
R2046,2047		ERJ8GCYK1R8	CHIP 1/8W 1.8	2	
R2048		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R2049-2051		ERJ3GEYJ103	CHIP 1/20W 10K	3	
R2052		ERJ3GEY0R00	CHIP 1/20W 0	1	
R2053,2054		ERJ3GEYJ682	CHIP 1/20W 6.8K	2	
R2060		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R2062		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R2064		ERJ3GEYJ101	CHIP 1/20W 100	1	
R2065		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R2066		ERJ3GEYJ221	CHIP 1/20W 220	1	
R2067-2069		ERJ6GMYJ150	CHIP 1/16W 15	3	
R2070-2072		ERJ3GEYJ104	CHIP 1/20W 100K	3	
R2077		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R2079		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R2080		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R2084		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2086		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R3001		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3002		ERJ3GEYJ271	CHIP 1/20W 270	1	
R3003		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R3004		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R3007		ERJ3GEY0R00	CHIP 1/20W 0	1	
R3008		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3013		ERJ6GMYJ331	CHIP 1/16W 330	1	
R3014		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3015		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R3016		ERJ3GEYJ391	CHIP 1/20W 390	1	
R3017		ERJ3GEYJ560	CHIP 1/20W 56	1	
R3018		ERJ3GEYJ221	CHIP 1/20W 220	1	
R3019		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R3020,3021		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R3022,3023		ERJ3GEYJ270	CHIP 1/20W 27	2	
R3024		ERJ3GEYJ680	CHIP 1/20W 68	1	
R3025		ERJ3GEYJ220	CHIP 1/20W 22	1	
R3026,3027		ERJ3GEYJ821	CHIP 1/20W 820	2	
R3028		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R3029		ERJ3GEYJ681	CHIP 1/20W 680	1	
R3030		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R3031		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R3032		ERJ3GEYJ391	CHIP 1/20W 390	1	
R3033		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3036		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3039,3040		ERJ3GEYJ472	CHIP 1/20W 4.7K	2	
R3041		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3042		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3043,3044		ERJ3GEYJ472	CHIP 1/20W 4.7K	2	
R3045		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R3046,3047		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R3048,3049		ERJ3GEYJ684	CHIP 1/20W 680K	2	
R3050		ERJ3GEYJ821	CHIP 1/20W 820	1	
R3051		ERJ3GEYJ221	CHIP 1/20W 220	1	
R3054		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3055		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R3056		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3057		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3058		ERJ3GEYJ681	CHIP 1/20W 680	1	
R3059		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R3061		ERJ3GEYJ331	CHIP 1/20W 330	1	
R3063		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3067		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R3068		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R3076		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3078,3079		ERJ3GEYJ152	CHIP 1/20W 1.5K	2	
R3082		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R3087		ERJ3GEYJ271	CHIP 1/20W 270	1	
R3089		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R3090		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R3091		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R3093,3094		ERJ3GEYJ182	CHIP 1/20W 1.8K	2	
R3102		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3103		ERJ3GEY0R00	CHIP 1/20W 0	1	
R3111		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R3117		ERJ3GEY0R00	CHIP 1/20W 0	1	

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3118		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R3120		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3121,3122		ERJ3GEYJ151	CHIP 1/20W 150	2	
R3124		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3125		ERJ3GEYJ121	CHIP 1/20W 120	1	
R3145,3146		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R3147		ERJ3GEYJ681	CHIP 1/20W 680	1	
R3148		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3150		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R3154		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R3158		ERDS2TJ224	C.RESISTOR 1/4W 220K	1	
R3501		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R3502		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R3503		ERJ3GEYJ391	CHIP 1/20W 390	1	
R3504		ERJ3GEYJ271	CHIP 1/20W 270	1	
R3505		ERJ3GEYJ4R7	CHIP 1/20W 4.7	1	
R3506		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R4001		ERJ3GEYJ100	CHIP 1/20W 10	1	
R4002		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R4003		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R4004		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R4005		ERJ3GEYJ151	CHIP 1/20W 150	1	
R4006		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R4007		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R4009		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R4010		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R4011		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R4012		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R4013		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R4014		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R4016		ERJ3GEYJ271	CHIP 1/20W 270	1	
R4018		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R4025		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R4026		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R4027		ERJ3GEYJ561	CHIP 1/20W 560	1	
R4029		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R4030		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R4031		ERJ3GEYJ124	CHIP 1/20W 120K	1	
R4032		ERJ3GEYJ124	CHIP 1/20W 120K	1	
R4033,4034		ERJ3GEYJ473	CHIP 1/20W 47K	2	
R4035		ERJ3GEYJ101	CHIP 1/20W 100	1	
R4036		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R4037		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R4038		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R4039		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R4040		ERJ3GEYJ681	CHIP 1/20W 680	1	
R4041		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R4042		ERJ6GMYJ103	CHIP 1/16W 10K	1	
R4044		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R4049		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R4050,4051		ERJ3GEYJ122	CHIP 1/20W 1.2K	2	
R4052,4053		ERJ3GEYJ272	CHIP 1/20W 2.7K	2	
R5001		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5002		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R5003		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5004		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R5005		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5006,5007		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5008		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5009		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R5010		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5011		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R5012		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5013,5014		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5015		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5016		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R5017		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5018		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R5019		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5020,5021		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5022		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5023		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R5024		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5025		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R5026		ERJ3GEYJ103	CHIP 1/20W 10K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R5027,5028		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5029		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5030-5033		ERJ3GEYJ392	CHIP 1/20W 3.9K	4	
R5034		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5035		ERJ3GEYJ681	CHIP 1/20W 680	1	
R5036,5037		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R5039		ERJ3GEYJ331	CHIP 1/20W 330	1	
R5040		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5041		ERJ3GEYJ681	CHIP 1/20W 680	1	
R5042		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5043		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5044		ERJ3GEYJ121	CHIP 1/20W 120	1	
R5045		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5049		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5050		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R5053		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5054		ERJ6GMYJ102	CHIP 1/16W 1K	1	
R5056-5059		ERJ3GEYJ471	CHIP 1/20W 470	4	
R5063		ERJ3GEYJ100	CHIP 1/20W 10	1	
R6003		ERJ3GEY0R00	CHIP 1/20W 0	1	
R6004		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R6005		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R6006,6007		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R6008,6009		ERJ3GEYJ473	CHIP 1/20W 47K	2	
R6010		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R6011		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6013		ERJ3GEY0R00	CHIP 1/20W 0	1	
R6014,6015		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R6017		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6018,6019		ERJ6GMYJ391	CHIP 1/16W 390	2	
R6020		ERJ8GCYJ391	CHIP 1/8W 390	1	
R6021-6023		ERJ6GMYJ391	CHIP 1/16W 390	3	
R6024		ERJ8GCYJ391	CHIP 1/8W 390	1	
R6025		ERJ6GMYJ391	CHIP 1/16W 390	1	
R6026		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6027		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6028		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6029		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6030		ERJ3GEYJ474	CHIP 1/20W 470K	1	
R6031		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6032,6033		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R6034		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R6035		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R6036		ERJ3GEYJ564	CHIP 1/20W 560K	1	
R6037		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6038		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R6039		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R6040		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6041		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6042		ERJ8GCYJ391	CHIP 1/8W 390	1	
R6043		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6044		ERJ8GCYJ391	CHIP 1/8W 390	1	
R6045		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6046		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R6047		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6048		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6049		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6050		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6051		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6052		ERJ6GMYJ270	CHIP 1/16W 27	1	
R6053		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R6054,6055		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	
R6056,6057		ERJ8GCYJ221	CHIP 1/8W 220	2	
R6058		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6059,6060		ERJ3GEYJ224	CHIP 1/20W 220K	2	
R6061		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R6062		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	[illegible]
R6063		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6064		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R6066,6067		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R6068		ERJ6GMYJ473	CHIP 1/16W 47K	1	
R6069		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R6070		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6071		ERJ6GMYJ472	CHIP 1/16W 4.7K	1	
R6072		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6056		ERJ3GEYJ181	1/20W 180	1	

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R6073		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6074		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6077		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R6079		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6082		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6084,6085		ERJ3GEYJ473	CHIP 1/20W 47K	2	
R6086		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R6087,6091		ERJ3GEYJ102	CHIP 1/20W 1K	5	
R8001		ERJ3GEY0R00	CHIP 1/20W 0	1	
R8002		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R8003		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R8004		ERJ3GEYJ271	CHIP 1/20W 270	1	
R8005		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R8006		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R8007		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8008		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R8009		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R8011~8013		ERJ3GEYJ102	CHIP 1/20W 1K	3	
R8014		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R8015		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8016,8017		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R8018		ERJ3GEYJ151	CHIP 1/20W 150	1	
R8019		ERJ3GEYJ471	CHIP 1/20W 470	1	
R8020		ERJ3GEYJ821	CHIP 1/20W 820	1	
R8021		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8022		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R8023		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R8024		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R8025,8026		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R8027		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R8028		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R8029		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R8030		ERJ8GCYJ470	CHIP 1/8W 47	1	
R8031		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R8032		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R8033		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R8034		ERJ3GEYJ821	CHIP 1/20W 820	1	
R8035		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R8037		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R8038		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8040		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8045		ERJ3GEY0R00	CHIP 1/20W 0	1	
R8054		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R8055,8056		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R8060		ERJ3GEYJ681	CHIP 1/20W 680	1	
R8061		ERJ3GEYJ471	CHIP 1/20W 470	1	
R8062		ERJ3GEYJ101	CHIP 1/20W 100	1	
R8063		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R8065		ERJ6GMY0R00	CHIP 1/16W 0	1	
R8066,8067		ERJ3GEYJ563	CHIP 1/20W 56K	2	
S6001		ESD142127	SWITCH	1	<R>
T1001		ELL10R010	TRANSFORMER	1	<R>
T4001		EIQ7QE007Q	TRANSFORMER	1	<R>
TH3001		ERTD2FIK154S	THERMISTOR	1	
			VALIABLE RESISTOR		
VR1001		EVM7NSW00B53	V.RESISTOR 5K	1	
VR1002		EVM7NSX00B53	V.RESISTOR 5K	1	
VR1003		EVM7NSW00B53	V.RESISTOR 5K	1	
VR2001		EVM7NSW00B15	V.RESISTOR 100K	1	
VR3001-03		EVM7NSX00B54	V.RESISTOR 50K	3	
VR3004,05		EVM7NSX00B14	V.RESISTOR 10K	2	
VR3006		EVM7NSX00B23	V.RESISTOR 2K	1	
VR3007		EVM7NSX00B54	V.RESISTOR 50K	1	
VR3012		EVM7NSX00B23	V.RESISTOR 2K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
VR4001		EVM7NSX00B23	V.RESISTOR 2K	1	
VR6001		EVM7NSW00B23	V.RESISTOR 2K	1	
VR6002		EVM7NSX00B14	V.RESISTOR 10K	1	
VR8001		EVM7NSX00B13	V.RESISTOR 1K	1	
VR8002		EVM7NSX00B54	V.RESISTOR 50K	1	
X1001		VSX0136	CRYSTAL OSCILLATOR	1	
X2001		VSX0154	CRYSTAL OSCILLATOR	1	
X6001		VSX0140	CRYSTAL OSCILLATOR	1	
X6002		VSX0249	CRYSTAL OSCILLATOR	1	
X8001		VSX0134	CRYSTAL OSCILLATOR	1	
			MISCELLANEOUS		
		VSC2181	HEAD AMP SHIELD CASE (MAIN)	1	
		VSC2180	HEAD AMP SHIELD CASE BOTTOM	1	
		VSC1932	SHIELD CASE	1	
		VSC1358	POWER SHIELD CASE	1	
		VMZ0651	POWER SHIELD CASE BARRIER	1	
	■	VEP00K79A	CAMERA OPERATION (I) C.B.A.		
			CAPACITORS		
~~C001~~		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
~~C002~~		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
D001-005		MA165	DIODE	5	<R>
D006		BR3668S	DIODE	1	<R>
P001		VJP1612T	CONNECTOR(MALE)	1	
P002		VJP1613T	CONNECTOR	1	
P003		VJP1606T	CONNECTOR(MALE)	1	
			RESISTORS		
~~R001~~		~~ERDS2TJ562~~	C.RESISTOR 1/4W 5.6K	1	
R002,003		ERDS2TJ563	C.RESISTOR 1/4W 56K	2	
R004,005		ERDS2TJ102	C.RESISTOR 1/4W 1K	2	
SW001,002		EVQQSU04W	SWITCH	2	<R>
SW003		VSS0170	SWITCH	1	<R>
SW004,005		EVQQSU04W	SWITCH	2	<R>
SW006		VSS0126	SWITCH	1	<R>
SW007		EVQQSU04W	SWITCH	1	<R>
	■	VEK3661	CAMERA OPERATION (II) C.B.A		
SW009		EVQQSU04W	SWITCH	1	<R>
	■	VEP06452A	OPERATION C.B.A.		

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
D6501-6507		BR3668S	DIODE	7	<R>
D6508-6519		MA165	DIODE	12	<R>
P6501		VJP1606T	CONNECTOR(MALE)	1	
P6502		VJP2107	CONNECTOR	1	
S6501		ESD100121	SWITCH	1	<R>
S6502-6513		EVQQSB04B	SWITCH	12	<R>
S6514		VST0098	SWITCH	1	<R>
S6515,6516		EVQQSB04B	SWITCH	2	<R>
	■	VEK3413	14P REMOTE CONTROL C.B.A.		
			MISCELLANEOUS		
		VJJ0125	REMOTE CONTROL JACK	1	
	■	VEK3622	ZOOM SW C.B.A.		
P1507		VJP1607T	CONNECTOR 3P	1	
	■	VEK3623	START STOP SW C.B.A.		
			MISCELLANEOUS		
		EVQQSU04W	SWITCH	1	<R>
	■	VEK3624	SUB START STOP SW C.B.A.		
			MISCELLANEOUS		
		EVQQSU04W	SWITCH	1	<R>
	■	VEK3521	E.V.F. CONNECTOR UNIT		
P1505		VJP1613T	CONNECTIOR 9P	1	
	■	VEP00H73B	FE HEAD C.B.A.		
			CAPACITORS		
C1501		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C1502		ECKF1H472ZF	C.CAPACITOR 50V 4700P	1	
C1503		VCYD1C103MR1	S.CAPACITOR 16V 0.01U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C1504		ECQV1H333JZ	P.CAPACITOR 50V 0.033U	1	
L1501		VLQEL05F221K	COIL 220UH	1	
Q1504		2SC2603AE2F	TRANSISTOR	1	<R>
			RESISTORS		
R1503		ERDS2TJ333	C.RESISTOR 1/4W 33K	1	
T1501		EIQ7QT007Q	TRANSFORMER	1	<R>
	■	VEK3415	SUPPLY PHOTO TR. C.B.A.		
			MISCELLANEOUS		
		PN158NVNC)	PHOTO TRANSISTOR	1	
		VMD0607	PHOTO HOLDER (S)	1	
		VSH0026	MECHANICAL SWITCH	1	
	■	VEK3414	TAKEUP PHOTO TR. C.B.A.		
			MISCELLANEOUS		
		PN158NV	PHOTO TRANSISTOR	1	
		VMD0606	PHOTO HOLDER (T)	1	
	■	VES0413	MECHANISM CONNECTION C.B.A.		
			MISCELLANEOUS		
		VMX1280	SENSOR SPACER	1	
		ON2170	SENSOR	1	
		VSS0193	MODE SWITCH	1	
		VJP1235T	CONNECTOR	1	
		VJP1229R	CONNECTOR	1	

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.

4. MECHANICAL REPLACEMENT PARTS LIST FOR AC ADAPTOR (AG-B3A)

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
1(1)		VKM1114	TOP CASE	1	<R>
2(1)		VYP2019	FRONT PANEL UNIT	1	<R>
3(1)		VKM1115	SIDE CASE	1	<R>
4(1)		VKM1116	REAR CASE	1	<R>
5(1)		VGU2144	OPERATE/TV SWITCH KNOB	2	<R>
6(1)		VGH0632	A-V TERMINAL NAME PLATE	1	
7(1)		VGH1551	REAR PANEL NAME PLATE	1	FOR U.S.A. MODEL
7(1)		VGH1552	REAR PANEL NAME PLATE	1	FOR CANADIAN MODEL
8(1)		VJA0367	AC CORD	1	FOR U.S.A. MODEL
					<!><R>
8(1)		VJA0368	AC CORD	1	FOR CANADIAN MODEL
					<!><R>
9(1)		VJA0465	DC OUTPUT CORD	1	<R>
10(1)		VMP1588	AC-DC CORD ANGLE	1	FOR U.S.A. MODEL
					<!><R>
10(1)		VMP1589	AC-DC CORD ANGLE	1	FOR CANADIAN MODEL
					<!><R>
11(1)		VMP1010	A-V TERMINAL ANGLE	1	
12(1)		VSC1669	MAIN SHIELD CASE	1	
13(1)		VMZ1126	INSULATION BARRIER (A)	1	<!><R>
14(1)		VMZ1127	INSULATION BARRIER (B)	1	<!><R>
15(1)		VJF0014	BUSHING	1	FOR U.S.A. MODEL
					<!><R>
15(1)		VMP5027	BUSHING	1	FOR CANADIAN MODEL
					<!><R>
16(1)		VMZ0797	BARRIER	1	
19(1)		VMZ1129	REAR INSULATION PLATE (B)	1	<!><R>
20(1)		VMP1169	RF CONVERTER SUPPORT ANGLE	1	
21(1)		VMP0816	FRONT PANEL SUPPORT ANGLE	1	
22(1)		VMP0686	A-V TERMINAL SUPPORT ANGLE	1	

5. ELECTRICAL REPLACEMENT PARTS LIST FOR AC ADAPTOR (AG-B3A)

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VEP61012B	MAIN C.B.A.	1	<R><NLA>
		VEP60052A	FRONT PANEL C.B.A.	1	<R><NLA>
		VEP60053A	A-V TERMINAL C.B.A.	1	<R><NLA>
		ENC46903	RF CONVERTER UNIT	1	<!><R>
	■	VEP61012B	MAIN C.B.A.		
			CAPACITORS		
C001		ECQU2A224MN	P.CAPACITOR 100V 0.22U	1	
C002		ECQU2A473MN	P.CAPACITOR 250V 0.047U	1	
C006-09		VCK0046	C.CAPACITOR 1000P	4	
C010		ECES2GG820K	E.CAPACITOR 400V 82U	1	
C011		ECQE2104KF	P.CAPACITOR 0.1U	1	
C012		ECEA1VGE101	E.CAPACITOR 35V 100U	1	
C013		ECEA1VGE220	E.CAPACITOR 35V 220U	1	
C014		ECEA1CGE330	E.CAPACITOR 16V 33U	1	
C015		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C016		VCK0062	C.CAPACITOR	1	
C018		ECKD3A101KB	C.CAPACITOR 1KV 100U	1	
C101		ECEA1EF102	E.CAPACITOR 25V 1000U	1	
C102		ECEA1EGE471	E.CAPACITOR 25V 470U	1	
C103		ECEA1VGE101	E.CAPACITOR 35V 100U	1	
C104		ECEA1VGE100	E.CAPACITOR 35V 10U	1	
C105		ECEA1HU010	E.CAPACITOR 50V 1U	1	
C106		ECEA1EU100	E.CAPACITOR 25V 10U	1	
C107		ECEA1EN4R7SB	E.CAPACITOR 25V 4.7U	1	
C108,09		ECEA1EGE470	E.CAPACITOR 25V 47U	2	
C110		ECEA1CM102U	E.CAPACITOR 16V 1000U	1	
C111		ECEA1CU330	E.CAPACITOR 16V 33U	1	
C112		ECQV1H224JZ	P.CAPACITOR 50V 0.22U	1	
C113		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C114		ECEA1CGE221	E.CAPACITOR 16V 220U	1	
C115		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C116		ECEA1EGE100	E.CAPACITOR 25V 10U	1	
C117		ECKD3A221KBN	C.CAPACITOR 1000V 220P	1	
D001		S1WBA60S	DIODE	1	<R>
D002		ERA22-08	DIODE	1	<R>
D003		ERA82-004	DIODE	1	<R>
D004		MA165	DIODE	1	<R>
D005		VSD0001	DIODE	1	<R>
D006		RMPG06GPKG3	DIODE	1	<R>
D007		MA4270H	DIODE	1	<R>
D101		FML12S	DIODE	1	<R>
D102		RMPG06GPKG3	DIODE	1	<R>
D103		SB340-5013L	DIODE	1	<R>
D107		RD8.2JS	DIODE	1	<R>
D108		OA95A	DIODE	1	<R>
D109,10		MA165	DIODE	2	<R>
D111		OA95A	DIODE	1	<R>
D112		MA4056M	DIODE	1	<R>
D113		MA165	DIODE	1	<R>
D114		MA4100L	DIODE	1	<R>
F001		XBA2C20NU0	FUSE	1	<!><R>
IC1		VCR0189	IC	1	<R>
IC101		VCR0190	IC	1	<R>
IC102		UPC78M12H	IC	1	<R>

To guarantee the *FUNCTION,SAFETY* and *RELIABLITY* of repaired units,only use *ORIGINAL REPLACEMENT* PARTS which are listed with their part numbers in this parts list section.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
L001		VLF0615	COIL	1	
L002		VLF0616	COIL	1	
L003,04		VLP0067	COIL	2	
L101		VLQ0098	COIL	1	
L102		VLQEL06F470K	COIL 47UH	1	
L103		VLP0067	COIL	1	
P6		VJP1143	CONNECTOR(MALE)	1	
PHC1		PC111A	PHOTO COUPLER	1	<R>
Q001		2SK954	TRANSISTOR	1	<R>
Q101		2SB953	TRANSISTOR	1	<R>
Q102		2SD638	TRANSISTOR	1	<R>
Q103		2SD636	TRANSISTOR	1	<R>
			RESISTORS		
R001-04		ERDS2TJ114	C.RESISTOR 1/4W 110K	4	
R005		ERG2SJ104	M.RESISTOR 2W 100K	1	
R006		ERX1SJR27	M.RESISTOR 1W 0.27	1	
R007		ERDS2TJ271	C.RESISTOR 1/4W 270	1	
R008		ERDS2TJ820	C.RESISTOR 1/4W 82	1	
R009		ERDS2TJ563	C.RESISTOR 1/4W 56K	1	
R010		ERDS2TJ183	C.RESISTOR 1/4W 18K	1	
R011		ERDS2TJ562	C.RESISTOR 1/4W 5.6K	1	
R012		ERDS2TJ101	C.RESISTOR 1/4W 100	1	
R013		ERC12GJ334	S.RESISTOR 1/2W 330K	1	
R014		ERC12ZGJ685	S.RESISTOR 1/2W 6.8M	1	
R015		ERDS2TJ120	C.RESISTOR 1/4W 12	1	
R016		ERDS2TJ220	C.RESISTOR 1/4W 22	1	
R101		ERF2AKR22	W.RESISTOR 2W 0.22	1	
R102		ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
R103		ERG2ANJ221	M.RESISTOR 2W 220	1	
R105-08		ERX1SJU1R0	M.RESISTOR 1W 1	4	
R109		ERDS2TJ223	C.RESISTOR 1/4W 22K	1	
R110		ERDS2TJ104	C.RESISTOR 1/4W 100K	1	
R111		ERDS2TJ183	C.RESISTOR 1/4W 18K	1	
R112		ERDS2TJ105	C.RESISTOR 1/4W 1000K	1	
R113		ERDS2TJ272	C.RESISTOR 1/4W 2.7K	1	
R114		ERDS2TJ223	C.RESISTOR 1/4W 22K	1	
R115		ERDS2TJ183	C.RESISTOR 1/4W 18K	1	
R116		ERDS2TJ822	C.RESISTOR 1/4W 8.2K	1	
R117		ERDS2TJ821	C.RESISTOR 1/4W 820	1	
R118		ERDS2TJ682	C.RESISTOR 1/4W 6.8K	1	
R119		ERDS2TJ821	C.RESISTOR 1/4W 820	1	
R120		ERDS2TJ682	C.RESISTOR 1/4W 6.8K	1	
R121		ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
R122		ERDS2TJ183	C.RESISTOR 1/4W 18K	1	
R123		ERDS2TJ271	C.RESISTOR 1/4W 270	1	
R124		ERDS2TJ681	C.RESISTOR 1/4W 680	1	
R125		ERG3SJ561	M.RESISTOR 3W 560	1	
R126		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R128		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
T001		VLT0523	TRANSFORMER	1	<R>
TH101		ERTD2ZHL332S	THERMISTOR 3.3K	1	
TH102		ERTD2ZIL154S	THERMISTOR 150K	1	
TH103		ERTD2ZHL153S	THERMISTOR 15K	1	
VR101		EVN3ACA00B53	V.RESISTOR 5K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
VR102		EVN3ACA00B24	V.RESISTOR 20K	1	
VR103		EVN3ACA00B53	V.RESISTOR 5K	1	
ZNR1		ENB461D-05A	SURGE ABSORBER 460V	1	<!><R>
			MISCELLANEOUS		
		TJC6320	FUSE HOLDER	2	<!><R>
		VMZ0429	FUSE COVER	1	<!><R>
		VMZ0997	AC CORD COVER	1	<!><R>
		VMZ1104	INSULATING SHEET	1	
		VSC2215	HEAT SINC (A)	1	
		VSC2216	HEAT SINC (B)	1	
		VSC2217	HEAT SINC (C)	1	
	■	VEP60052A	FRONT PANNEL C.B.A.		
			DIODES		
D301,02		LN21RCPHLM	LED	2	<R>
D303		D3S4M	DIODE	1	<R>
			RESISTORS		
R301		ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
R302		ERDS2TJ122	C.RESISTOR 1/4W 1.2K	1	
R303		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
SW301,02		ESD27170	SWITCH	2	<!><R>
			MISCELLANEOUS		
		KL04	LED SPACER	1	
		VJJ0128	EXT BATTERY TERMINAL	1	
	■	VEP60053A	A-V TERMINAL C.B.A.		
			CAPACITORS		
C201		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C202		ECKF1H561KB	C.CAPACITOR 50V 560P	1	
C203		ECEA0JU471	E.CAPACITOR 6.3V 470U	1	
C204		ECEA1CSS221	E.CAPACITOR 16V 220U	1	
C205		ECEA0JU471	E.CAPACITOR 6.3V 470U	1	
Q201		2SB641	TRANSISTOR	1	<R>
			RESISTORS		
R201		ERDS2TJ333	C.RESISTOR 1/4W 33K	1	
R202		ERDS2TJ123	C.RESISTOR 1/4W 12K	1	
R203		ERDS2TJ561	C.RESISTOR 1/4W 560	1	
R204		ERDS2TJ680	C.RESISTOR 1/4W 68	1	

To guarantee the FUNCTION,SAFETY and RELIABLITY of repaired units,only use ORIGINAL REPLACEMENT PARTS which are listed with their part numbers in this parts list section.